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No. 031067

In the Supreme Court of the United States

MEDICAL INSTRUMENTATION AND DIAGNOSTICS CORPORATION,

Petitioner,

v.

ELEKTA AB, ELEKTA INSTRUMENT AB, ELEKTA INSTRUMENTS, INC. AND ELEKTA ONCOLOGY SYSTEMS, INC.,

Respondents.

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

PETITION FOR WRIT OF CERTIORARI

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QUESTIONS PRESENTED FOR REVIEW

This case involves the issue of "equivalents" in patent claims that have a form known as "means-plus-function". Historical use of this form was codified in 35 U.S.C. Section 112, ¶ 6 which specifically refers to "equivalents". The statutory provision was included in the 1952 Patent Act to abrogate this Court's holding in Halliburton Oil Well Cementing Co. v. Walker, 329 U.S. 1 (1946). In the Halliburton case, a patent claim was found indefinite and therefore invalid for use of the means-plus-function form of limitation at the "point of novelty".

Federal Circuit cases construing "equivalents" under the statute and under the "doctrine of equivalents" remain confused after 20 years. Moreover, construction of Section 112, ¶ 6 has resulted in: (a) deprivation of the full use of the doctrine of equivalents; and (b) a requirement of explicit disclosure of the structure corresponding to the function in every claim limitation.

This case raises two questions that this Court should resolve:

I. Whether Section 112, ¶ 6 equivalents should be reconciled to the doctrine of equivalents expressly authorized in Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co., 520 U.S. 17 (1997).

II. Whether the statutory requirement that the specification disclose "corresponding structure" should be applied to all means-plus-function limitations indiscriminately, or only to limitations that are at the point-of-novelty.

PARTIES TO THE PROCEEDING AND CORPORATE DISCLOSURE STATEMENT

The Petitioner is Medical Instrumentation and Diagnostics Corporation.

Medical Instrumentation and Diagnostics Corporation has no parent company and no publicly held company owns ten percent (10%) or more of Medical Instrumentation and Diagnostics Corporation's stock.

The Respondents are Elekta AB, Elekta Instrument AB, Elekta Instruments, Inc. and Elekta Oncology Systems, Inc. Petitioner makes no representation as to the Respondents corporate affiliations.

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PETITION FOR WRIT OF CERTIORARI

OPINIONS BELOW

The opinion of the United States District Court for the Southern District of California (App. C hereto) is unreported. The opinion of the United States Court of Appeals for the Federal Circuit on the merits (App. B hereto), which is sought hereby to be reviewed, is reported at 344 F.3d 1205 (Fed. Cir. September 22, 2003). The order of the Federal Circuit denying the petition for panel rehearing and rehearing *en banc* (App. A hereto) is unreported.

STATEMENT OF JURISDICTION

A judgment of the United States Court of Appeals for the Federal Circuit (App. B) was entered on September 22, 2003. A timely petition for panel rehearing was denied on October 30, 2003. (App. A) The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

RELEVANT PROVISIONS INVOLVED

Article I, section 8, clause 8 of the Constitution: "To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

35 U.S.C. Section 112, ¶ 6: "An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."

STATEMENT

The proper determination of "equivalents" in patent claims continues to plague the decisions of the Federal Circuit Court of Appeals. Recently, this Court addressed the equivalents issue in the context of upholding the judicial doctrine of equivalents. Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co., 520 U.S. 17 (1997); Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722 (2002). This case raises a correlative issue involving equivalents statutorily permitted under 35 U.S.C. Section 112, ¶ 6 for claims in means-plus-function form[1]. "This [Section 112, ¶ 6] is an application of the doctrine of equivalents in a restrictive role, . . ." Warner Jenkinson 520 U.S. at 28.

The means-plus-function claim form is widely used and is extremely important in securing to the patentee a proper scope of protection for an invention. This is particularly true for computer-related inventions, as in the present case. Infra, p. 20. This claim form has been used since the late 19th Century with approval of the United States Patent Office and this

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[1] A "means-plus-function" claim element (or "limitation") expresses one component of a multi-component ("combination") claim by a function rather than the structure that performs the function. For example, the patent specification may disclose a nail and the claim may recite "a nail" as a structural element of the invention for attaching two wooden members together. In means-plus-function format, the component could be expressed as "means for attaching". The functional format would cover the disclosed nail, but may also cover various equivalents such as a screw, glue, magnets, dovetail joinery, etc. depending upon the nature and extent of the invention. It is therefore broader in scope and may provide more protection to the patentee.

Court. Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405 (1908). Congress expanded its use in the 1952 Patent Act by enactment of 35 U.S.C. Section 112, ¶ 6. Because certain decisions of the Federal Circuit severely restrict the means-plus-function claim form, it is perforce being abandoned by patent applicants.

This case raises two issues relating to "equivalents" in the context of 35 U.S.C. Section 112.

The **first issue** has broad impact and involves interpretation of the word "equivalent" in the statute. Despite the fact that the word is the same as used in the doctrine of equivalents, the Federal Circuit has denied that the terms have the same meaning. It holds that under Section 112, ¶ 6 an equivalent covered by the patent must have the same physical structure as that disclosed in the patent written description. It refers to such equivalent as a "structural equivalent". Valmont Industries, Inc. v. Reinke Mfg. Co., Inc., 983 F.2d 1039 (Fed. Cir. 1993). The holding created two problems: (1) confusion, i.e., what is the difference between a Section 112, ¶ 6 equivalent and an equivalent under the doctrine of equivalents; and (2) a patentee who uses the means-plus-function claim form is effectively denied the Warner-Jenkinson approved doctrine of equivalents.

The confusion problem was recognized by Judge Plager of the Federal Circuit, commenting on the double infringement analysis applied to means-plus-function claim elements. In Dawn Equipment Co. v. Kentucky Farms, Inc., 140 F.3d 1009, 1018 (Fed. Cir. 1998), in "additional views", Judge Plager stated: "I write additionally because I find the law in this area confused and confusing." He further observed: "One problem with this approach is that it assumes that there are clearly defined operational differences between these two

notions of equivalents, and that triers-of-fact (usually, whether judge or jury, persons unfamiliar in the first instance with the technology at issue, much less the legal conceptualizations), can readily differentiate between them." Id. Despite the passage of five years since the frank admission of Judge Plager, the Federal Circuit has done nothing to relieve the confusion.

The denial problem arises because Congress enacted Section 112, ¶ 6 to allow a patentee to use the means-plus-function claim form for any claim limitation. Because the Federal Circuit has limited those "equivalents" to physical structure, the Congressional mandate is nullified. Worse, although this Court held in Warner-Jenkinson that a patent claim limitation is entitled to the judicial doctrine of equivalents, for a Section 112, ¶ 6 limitation, the Federal Circuit has narrowed application of the doctrine of equivalents to "after-developed" technology. Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1310-11 (Fed. Cir. 1998); Al-Site Corp. v. VSI Internat'l., Inc., 174 F.3d 1308, 1320 (Fed. Cir. 1999). For common, old elements, the patentee is effectively deprived of the doctrine of equivalents in conflict with this Court's precedent.

The **second issue** with respect to Section 112, ¶ 6 concerns whether the statutory requirement for "corresponding structure" in the written patent specification for the function in the claim limitation has been misapprehended by the Federal Circuit. Section 112, ¶ 6 is widely acknowledged to have been a legislative response to the decision of this Court in Halliburton Oil Well Cementing Co. v. Walker, 329 U.S. 1 (1946). Warner-Jenkinson, 520 U.S. at 27. Halliburton involved a means-plus-function claim limitation. This Court recognized that the limitation was at the "point of novelty" of the invention. Earlier precedent

established that for a functional claim element, a court should distinguish between a minor or so-called "adjunctive" limitation and a limitation at the point of novelty, i.e., a limitation that distinguishes the prior art. General Electric Co. v. Wabash Appliance Corp., 304 U.S. 364, 371-72 (1938); Davis Sewing Mach. Co. v. New Departure Mfg. Co., 217 F. 775, 784 (6th Cir. 1914).

The legislative history of the 1952 Patent Act with respect to Section 112, ¶ 6 demonstrates that the provision was intended to apply to means-plus-function limitations that were at the point of novelty, not merely adjunctive means-plus-function limitations. See Rudolph P. Hoffmann, Jr. & Edward P. Heller, The Rosetta Stone for the Doctrine of Means-Plus-Function Patent Claims, 23 Rutgers Computer & Tech. L. J. 227, 273-82 (1997) (discussing the drafts and passage of paragraph 6 (at that time paragraph 3) in Congress). The statute was not enacted to permit use of the means-plus-function claim form for minor and well-known components of the combination -- case law and Patent Office practice was settled that the means-plus-function claim form was felicitous for such purpose.

The Federal Circuit in applying the "corresponding structure" test for a means-plus-function limitation gives no consideration whatsoever to the importance of the limitation. This can have a devastating effect on whether and to what extent the claim element is entitled to equivalents. David W. Brownlee, The Scope of Equivalents Under 35 U.S.C. § 112, ¶6 Should Vary Depending on Importance of the Means-Plus-Function Recitation to the Invention, 81 J. Pat. & Trademark Off. Soc'y 451, 461 (1999). Thus even for a minor element, as in the present case, the court requires that the corresponding structure be clearly disclosed and "clearly linked" to the function even though the element is admittedly

well-known to those of ordinary skill in the art. This practice, which had its genesis in B. Braun Med., Inc. v. Abbott Labs, 124 F.3d 1419 (Fed. Cir. 1997), is a new requirement applied to an estimated hundreds of thousands of patents and applied without warning, contrary to this Court's admonition regarding retroactive decision-making. Warner-Jenkinson, 520 U.S. at 32 n. 6. Nor does it have any statutory support.

Correction of either issue leads to a reversal of the Federal Circuit holding in this case. Either issue may be accepted without the other.

I. FEDERAL CIRCUIT LAW REGARDING EQUIVALENTS UNDER SECTION 112, ¶ 6 IS BOTH CONFUSED AND CONFLICTS WITH THE HOLDING IN THE WARNER-JENKINSON CASE ON THE DOCTRINE OF EQUIVALENTS

A. Confusion, Instead of Reconciliation

Following passage of the 1952 Patent Act, the Regional Circuits applied the doctrine of equivalents test set forth in Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605 (1950) to "equivalents" under Section 112, ¶ 6. Stearns v. Tinker & Rasor, 252 F.2d 589 (9th Cir. 1957); Noll v. O.M. Scott & Sons Co., 467 F.2d 295, 299-30 (6th Cir. 1972). So too, did the Court of Customs and Patent Appeals. Hale Fire Pump Co. v. Tokai, Ltd., 614 F.2d 1278 (CCPA 1980); In re Noll, 545 F.2d 141, 149-50 (CCPA 1976). However, in several early cases after formation of the Federal Circuit Court of Appeals in 1982, the court equivocated as to the meaning of "equivalents". D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1575 (Fed. Cir. 1985); Palumbo v. Dawn-Joy Co., 762 F.2d 969, 975, n. 4 (Fed. Cir. 1985); Texas Instruments, Inc. v. U.S. Int'l. Trade Comm'n., 805 F.2d

1558, 1571 (Fed. Cir. 1986); Johnston v. IVAC Corp., 885 F.2d 1574, 1580 (Fed. Cir. 1989)[2].

However, in Valmont Industries, Inc. v. Reinke Mfg. Co., Inc., 983 F.2d 1039 (Fed. Cir. 1993), the court clearly departed from the idea that "equivalents" under Section 112, ¶ 6 were the same as Graver Tank equivalents[3]. The court unequivocally stated: "A determination of section 112 equivalence does not involve the equitable tripartite test of the doctrine of equivalents." Id. at 1043. Although the court paid lip service to the commonality of the two words in the doctrine and the statute, it focused primarily on distinctions. In separating the doctrine from the statute, the court introduced a pernicious verbal distinction, conjuring the term "structural equivalent" for equivalents under Section 112, ¶ 6. Such equivalent requires physical structural similarity between the element in the accused infringing product and the disclosed structure in the specification; for example, a nail and a screw, but not glue, etc. The effect was to significantly restrict the scope of equivalents under Section 112, ¶ 6.

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[2] During this period it was recognized that it would be improper to limit Section 112, ¶ 6 equivalents to "structural" equivalents. De Graffenried v. United States, 20 Cl.Ct. 458, 480 (Cl. Ct. 1990) ("Limiting Section 112 'equivalents' to objects that are structurally equivalent to those objects described in a patent specification would undermine Congress' intent in 1952 in adding the [sixth] paragraph of Section 112.")

[3] Graver Tank equivalents are measured by the so-called tripartite infringement test: Does the accused product perform substantially the same function in substantially the same way to achieve substantially the same result. This test was recently approved in the context of the doctrine of equivalents. Warner-Jenkinson, 520 U.S. at 39-40.

The error of the court was immediately pointed out by Judge Rich in Baltimore Therapeutic Equipment Co. v. Loredan Biomedical, Inc., 26 F.3d 138, 30 USPQ2d 1672 (Fed. Cir. 1994), an unpublished decision, but nevertheless instructive on the question of the Valmont court holding.

> I can agree with the majority's generalized statement that to meet a means-plus-function limitation an accused device must perform the function named in the means clause 'and perform that function using the structure disclosed in the specification or an equivalent structure.' (My emphasis) That is what section 112, paragraph 6 says. But that does not necessarily mean that a structural equivalent of what the specification discloses must be used. The two emphasized expressions sound very similar but they connote very different concepts and should not be confused.

30 USPQ2d at 1677 (Rich, J., concurring) (Emphasis in original).

The distinction between these two terms was poignantly demonstrated by Judge Rich in a hypothetical from which Footnote 1, supra, was drawn. The demonstration recognized that a proper role for a means-plus-function limitation is to express a non-critical claim limitation in broad functional language so that the claim scope is not inadvertently restricted by reference to structure. The Valmont "structural equivalent" test has been used by the Federal Circuit in a long line of cases.

On the other hand, the unequivocal rejection of the Graver Tank function/way/result test in Valmont has not proved to be immutable, thus creating confusion. Various panels of the court rely on similarities while others rely on distinctions

between the doctrine of equivalents and Section 112, ¶ 6 "equivalents". See, for example, Alpex Computer Corp. v. Nintendo Co. Ltd., 102 F.3d 1214, 1222 (Fed. Cir. 1997); Cybor Corp. v. FAS Technologies, Inc., 138 F.3d 1448, 1457 (Fed. Cir. 1998); Dawn Equipment Co. v. Kentucky Farms, Inc., 140 F.3d 1009, 1023 (Fed. Cir. 1998) (Michel, J. additional views); Odetics, Inc. v. Storage Technology Corp., 185 F.3d 1259, 1267 (Fed. Cir. 1999); WMS Gaming, Inc. v. International Game Technology, 184 F.3d 1339, 1351 (Fed. Cir. 1999).

IMS Technology, Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1436 (Fed. Cir. 2000) appears to be in direct conflict with Valmont, stating that "the statute requires two structures to be equivalent, but it does not require them to be 'structurally equivalent', i.e., it does not mandate an equivalency comparison that necessarily focuses heavily or exclusively on physical structure." It is not possible to discern from these cases what is the proper test for a Section 112, ¶ 6 "equivalent".

There has been trenchant criticism of the concept of "structural equivalents". For example, "Finally, the structural equivalency rubric is conceptually empty because it seems to operate primarily as a cover for a priori conclusions of no equivalency." Mark D. Janis, Who's Afraid of Functional Claims? Reforming the Patent Law's § 112, ¶ 6 Jurisprudence, 15 Santa Clara Computer & High Tech L. J. 231, 264 (1999).

For at least ten years the Federal Circuit has attempted to reconcile the two "equivalents" resulting only in increased confusion. The analysis of similarities and differences has been exhausted, but the court has been unable to come to a resolution notwithstanding that there has been no new insight

into the problem in the five years since Judge Plager's telling comment.

B. Contrary to Warner-Jenkinson, a Patentee Using the Means-Plus-Function Claim Form is Deprived of the Doctrine of Equivalents.

Section 112, ¶ 6 was intended to permit a patentee to claim an invention more broadly than using a structural element description. The Federal Circuit jurisprudence relating to Section 112, ¶ 6 has resulted in the opposite. If a patentee uses a structural claim element description, such as a nail (as disclosed in the specification), but there is no literal infringement, the doctrine of equivalents applies. Under the familiar function-way-result test, equivalents will include, in the hypothetical, a screw. Moreover, depending on "interchangeability" testimony by one of ordinary skill in the art and the nature and extent of the invention, "equivalents" may further include glue, a clamp, two magnets, and possibly dovetail joinery. IMS Technology, Inc. v. Haas Automation, Inc., 206 F.3d at 1436.

On the other hand, if a patentee uses a means-plus-function claim form -- means for attaching -- (disclosing only a nail in the specification), under the structural equivalent test, only a nail or screw would be covered. If the accused product uses glue, there is no literal infringement under Section 112, ¶ 6 because glue is obviously not an equivalent physical structure, though it may, in the art, be interchangeable.

The patentee will pray for application of the doctrine of equivalents. But under Federal Circuit law, once the Section 112, ¶ 6 test is applied and fails, the doctrine of equivalents only applies to "after arising" or "after developed"

technology. Al-Site, 174 F.3d at 1320. Since glue, etc. is existing technology at the time of invention, the patentee is deprived of the doctrine of equivalents, at least for any well-known component. Assuming that the specification discloses only a nail, the analysis may be illustrated for the two types of claim forms as follows:

	Claim Language	**§ 112, ¶ 6 Equivalents**	**Doctrine of Equivalents**
Structural Element	Nail	N.A.	Screw, glue, magnets, dovetail joinery (if meets tripartite test)
Means-Plus-Function Element	Means for attaching	Screw	Likely none (no after-developed technology)

The patentee needs the means-plus-function form for minor, non-novel elements. The Federal Circuit law: (1) renders the Congressional benefit nugatory; and 2) limits, if not totally deprives, a patentee of the doctrine of equivalents contrary to this Court's holding in the Warner-Jenkinson case.

II. NOT ALL MEANS-PLUS-FUNCTION CLAIM LIMITATIONS MUST BE CLEARLY LINKED TO CORRESPONDING STRUCTURE IN THE SPECIFICATION

A. Means-Plus-Function Claim Limitations Vary in Importance and Section 112, ¶ 6 Applies Only to Important Limitations

The pre-Halliburton case law is replete with wrestling by courts with "functional" language in patent claims. If a limitation in a claim was found to be functional at the point-of-novelty, courts adopted two approaches to prevent the claim from encompassing all equivalent structures. First, as in the General Electric case, the court found the claim invalid on the grounds that it failed to comply with the statutory requirement that a claim "particularly point out and distinctly claim" the invention. R.S. § 4888 (now, 35 U.S.C. Section 112, ¶ 2). 304 U.S. at 373. Alternatively, courts found that reference should be made to the disclosure in the patent specification to limit the scope of a functionally defined claim limitation. Boyden Power Brake Co. v. Westinghouse, 170 U.S. 537, 557-58 (1898).

Regardless of which approach was chosen, it was commonplace for courts to analyze the invention and characterize the limitation or limitations in a combination claim as the "very essence of the invention", or the "pith" of the invention or the "peculiar feature of novelty". Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. at 422 (1908). The expressions "exact point of novelty" and "characteristic essential to novelty" were found useful in General Electric Co., 304 U.S. at 371. This differentiation was the critical determinant in the holding of the Halliburton case that use of the means-plus-function claim form for a

limitation that was at the point of novelty rendered the claim invalid as indefinite. In Faulkner v. Gibbs, 338 U.S. 267 (1949), decided shortly after Halliburton, this Court stated that the holding in Halliburton was that the claim was invalid because the limitation at the "precise point of novelty" was too broad, holding that "[i]n the instant case, the patent has been sustained because of the fact of the combination rather than the novelty of any particular element." 338 U.S. at 268.[4]

Once the concept of differentiated limitations was developed, the Patent Office took the position that it would be permissible to use functional language, such as "means for" or "mechanism" for adjunctive limitations. Davis Sewing Mach. Co., 217 F. at 784; V.I. Richard, Does Halliburton v. Walker Make any Innovations, 30 J. Patent Office Soc'y 251 at 251 (1948) ("[W]hen conventional structure is to be defined broadly, so that a known function is to be provided by well known structural equivalents, a 'means' clause is a more proper term than is one to a specific structural element.") An articulate expression of the pre-Halliburton rule with respect to characterizing means-plus-function limitations in a claim was set forth in Davis Sewing Mach. Co. v. New Departure Mfg. Co., 217 F. at 782-83 (6th Cir. 1914). This Court recognized the concept in General Electric Corp., 304 U.S.

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[4] The distinction between the point-of-novelty in an element and the point-of-novelty in a "combination" may be illustrated by: (1) the prior art shows a combination comprising elements A, B, and C; (2) the inventor adds D to achieve a new result; (3) D is expressed as means plus function; (4) if D is new, it is the point of novelty and could not be expressed by a "means" clause; (5) if D is old, but the combination A, B, C, and D performs a new result, the point of novelty is the combination, not D, and D may be expressed in "means" form.

at 371 ("A limited use of terms of effect or result, which accurately define the essential qualities of a product to one skilled in the art, may in some instances be permissible and even desirable, but a characteristic essential to novelty may not be distinguished from the old art solely by its tendency to remedy the problems in the art met by the patent.").

It was therefore with an understanding of the distinction between types of functional limitations that Congress approached the question of the use of means-plus-function limitations and incorporated Section 112, ¶ 6 into the 1952 Patent Act.

In 1948 the House Subcommittee on Patents, Trademarks, and Copyrights conducted hearings from which a decision was made that there should be a comprehensive amendment and codification of the patent laws. Rudolph P. Hoffmann, Jr. & Edward P. Heller, The Rosetta Stone for the Doctrine of Means-Plus-Function Patent Claims, 23 Rutgers Computer & Tech. L. J. 227, 273 (1997). The House Subcommitee sought the assistance of Pasquale J. Federico, Examiner-in-Chief at the Patent Office, who prepared a draft bill. Id. Shortly thereafter, a committee including Giles S. Rich (subsequently appointed to the Court of Customs and Patent Appeals in 1956 and serving on the Federal Circuit Court of Appeals since its inception until his recent death) revised the Federico draft which was introduced as H.R. 9133 in July 1950. Id. A new section relating to functional claims was proposed: "Where the essence of the novelty of any claim is recited in terms of means or method for performing a specified function without the recital of structure or acts in support thereof, the claim shall not be invalid because of its functionality, but shall be construed to cover the corresponding structure or acts prescribed in the specification and equivalents thereof." Id. at 275 (Emphasis added). In

April 1951 Representative Bryson introduced a new bill which amended the original language to that almost identical[5] to the present paragraph (now the sixth paragraph) of Section 112. Id.

The new Section 112 paragraph did not create the means-plus-function claim form. It did not offer patentees any advantage in the use of this form that was not already legally recognized except that means-plus-function elements at the point of novelty could not be held indefinite and invalid. However, equivalents of such critical elements would be restricted to corresponding structure in the specification and equivalents. When the paragraph is read in historical context and purpose, it does not require that minor means-plus-function elements must be precisely defined in the specification, let alone "clearly linked" as required in this case.

B. The Federal Circuit Holding in the B. Braun Case, Stringently Applied in the Instant Case, Is Not Supported by the Properly Construed Section 112, ¶ 6 Requirement

In B. Braun Med., Inc. v. Abbott Labs, 124 F.3d 1419 (Fed. Cir. 1997), for the first time, the Federal Circuit read into Paragraph 6 that corresponding structure must be "clearly linked" to the function. In other words, the patentee must expressly state in the specification, in the example of Footnote 1: "The nail attaches the two wooden members." As in all questions involving adequacy of disclosure in a patent for Section 112, the test is based on what would be understood by one having ordinary skill in the art. Logically, if the means-

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[5] The word "material" was added into "structure or acts".

plus-function limitation is at the point of novelty, even one skilled in the art may require an explicit disclosure and relationship to function. But if one skilled in the art knew how to perform the function without even reading the patent, because the element is as common as a nail, there is no logic in interpreting the statute so stringently. No more logic than requiring that the specification describe what a nail is.

The error in B. Braun and in this case is to read into the statute that all means-plus-function elements are indiscriminately required to be clearly linked to explicit corresponding structure in the specification. B. Braun has been followed in this case and a line of cases including Atmel Corp. v. Information Storage Devices, Inc., 198 F.3d 1374 (Fed.Cir. 1999); Medtronic, Inc. v. Advanced Cardiovascular Systems, Inc., 248 F.3d 1303 (Fed.Cir. 2001); Budde v. Harley-Davidson, Inc., 250 F.3d 1369 (Fed. Cir. 2001); Omega Engineering, Inc. v. Raytek Corp., 334 F.3d 1314 (Fed.Cir. 2003); Intellectual Property Development, Inc. v. UA-Columbia Cablevision of Westchester, Inc., 336 F.3d 1308 (Fed.Cir. 2003).

No one has ever suggested that Section 112, ¶ 6 abrogated the holding in the General Electric case that limitations vary in importance to the invention. The failure of the Federal Circuit in the B. Braun case, and here, to apply this principle is therefore in conflict with precedent of this Court.

III. FEDERAL CIRCUIT COURT OF APPEALS DECISION

The Federal Circuit Court of Appeals decision in this case reversed the lower court's denial of a motion by defendants for judgment as a matter of law of non-infringement. Underlying the holding of non-infringement was the

disagreement by the Federal Circuit with the lower court interpretation of Element 2, one of the seven elements in the independent claim of each of the two patents.[6]

The gist or essence of the invention centered around combining stereotaxy with composite images. That combination is set forth in Elements 4 (means for selectively recalling and displaying at least two images of said plurality of images upon a single display) and the first portion of Element 7 (means for determining stereotactic coordinates . . . .) Element 2 recited a minor function, old in the art -- "converting" images to a selected format.

In 1988, scanned images (CT, MRI, etc.) could be transmitted to the planning computer in either analog or digital format. If the images were acquired in analog format, they had to be converted to a digital format before being processed. A hardware device, called a framegrabber, performed this function. If the images were obtained in digital format, the specific format may not be suitable for processing in the planning computer. Software is used to convert the acquired digital image to a digital "selected" format. The framegrabber cannot convert a digital image in one format to a different format. Software cannot convert an analog image to a digital format.

The conversion of the analog or digital images is expressed in Element 2 as "means for converting said

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[6] Each element was in means-plus-function format. (App. 7a) Each element expressed a software operation executed on computer hardware, e.g., "means for storing" (Element 3) involved the processor executing a software routine that placed an image on the hard disk drive.

plurality of images into a selected format". The lower court found that there was sufficient disclosure of software for performing the function of Element 2 of the claim. After a four-week trial, the jury found that Elekta had willfully infringed the patents and awarded Midco $16,595,000 in reasonable royalties. The district court enhanced these damages by 25% and awarded Midco partial attorney fees and pre-judgment interest. Not surprisingly, Elekta did not challenge on appeal the finding of willfulness since the lower court in denying Elekta's JMOL motion observed: "[T]he two companies had discussed a joint venture, but Elekta decided to proceed alone -- with technology that the jury found belonged to Midco." (App. 66a)

In the panel decision, the majority essentially conceded that Midco had presented evidence: (1) that a skilled programmer at the time of filing of the patent application "could have written a program for digital-to-digital conversion of image size, and we have no reason to doubt that assertion" (App. 14a); and (2) that Midco's expert had undisputedly testified that programs for digital-to-digital conversion "were widely available from well-known sources or available from other software developers. . . ." Id. Yet the court found that the specification per se must disclose and clearly link the software with the conversion function regardless of whether that was necessary for the understanding of one skilled in the art. The panel dissent was summed up in the comment on the adequacy of disclosure: "Is this court now requiring a five-foot-shelf of zeros and ones?" (App. 40a)

Under the panel majority holding, a means-plus-function limitation, even if simply background or ancillary to the essence of the invention, requires the same strict proof as limitations that capture the essence of the invention. That is

what apparently led the dissent to observe that as an appellate tribunal, its obligation is to determine if the jury verdict was based on correct law, "not to strain for ways to reject the verdict." (App. 40a)

The other issue in this petition, the interpretation of what is meant by the term "equivalents" in Section 112, ¶ 6, also informed the panel majority conclusion. In this case, based upon the interpretation of the panel majority, structure that performed the conversion function could only be hardware, i.e., the framegrabber. The court did not consider whether digital-to-digital conversion software is the "equivalent" of the framegrabber, assuming that software could not be a "structural" equivalent to hardware under the erroneous Federal Circuit test. Under the doctrine of equivalents, the proper test, software performs the function in substantially the same way (converting an electrical signal) to obtain the same result (an image in the "selected format"). Thus software would be an equivalent except that it was not "after-developed" technology and therefore was ineligible for doctrine of equivalents application.

REASONS FOR GRANTING THE WRIT

I. THE PRESENT STATE OF THE LAW OF CLAIM "EQUIVALENTS" IS CONFUSING, BUT WORSE, DEPRIVES A PATENTEE OF FULL USE OF THE DOCTRINE OF EQUIVALENTS

The failure to reconcile the statute and case law adversely affects the patent bar, the lower courts, and the patent system. As Judge Newman noted in dissent: "This thoroughly tried case produced not only several careful and well-considered opinions by the district court, but a month's trial to a jury."

The lower courts must apply the double equivalents test to means-plus-function claim limitations. The distinction between a structural equivalent and a functional equivalent is too subtle and confusing when the limitation is not a simple means for attaching, like a nail, but rather a complex element in a high technology invention.

There must be, and there is, a way of simplifying infringement analysis. The Federal Circuit appears unable to obtain a consensus for a solution to this long-standing problem. Cases over the last 10 years provide no indication that the court is iteratively moving toward a solution. Thus a solution from this Court is necessary.

II. NEGATIVE IMPACT OF THE FEDERAL CIRCUIT JURISPRUDENCE REGARDING EQUIVALENTS

Means-plus-function claim limitations have an important function in patent law. Lawrence B. Goodwin, Computer Patent Issues: Use and Avoidance of § 112, Paragraph 6, to Make Your Case, 78 J. Pat. & Trademark Off. Soc'y 809, at 810 (1996) ("[I]t may be difficult to claim such [computer-related] inventions as apparatus in anything other than means-plus-function form.") Judge Newman, in her dissent, makes a poignant comment: "The majority has created inappropriate conditions for computer-based inventions; . . . ." (App. 36a) See also, Albert M. Zalkind, Halliburton Oil Well Cementing Co. v. Walker, 29 J. Pat. Office Soc'y 115, 130 n. 29 (1947) ("It is often highly desirable that the fact that a structural element is old and conventional be indicated by a 'means' designation," quoting a Patent Office examiner educational paper.) The Federal Circuit demeans the problem of claim drafting when it refers to means-plus-function claim limitations as a "convenience" permitted by Congress. (App.

12a) This claim form existed long prior to Section 112, ¶ 6 as a necessity to prevent copyists from easily circumventing a claim by an insubstantial change to a minor claim element. There was a rich and settled history prior to the Federal Circuit artificial constraints. Such restrictions have upset established law and diminished valuable patent rights. This will only result in decreased incentive to innovate.

No doubt an inventor and a patent scrivener can avoid means-plus-function claiming. With sufficient time and sufficient money they can prepare a long list of alternatives that perform the function for the patent specification to prevent a poacher's insubstantial change to avoid infringement. But that is of small consolation to the individual inventor or small start-up company. Furthermore, even with such more cumbersome and expensive patent specification, hundreds of claims (for all of the permutations of multiple element alternatives) must be written, examined and prosecuted. Still, not every alternative will be thought of, to say nothing about alternatives that arise from new technology after the patent issues. Moreover, if an alternative is stated in the specification, but not expressly claimed, it is dedicated to the public. Johnson & Johnston Assoc. Inc. v. R.E. Service Co., 285 F.3d 1046, 1055 (Fed. Cir. 2002). Although it would be hyperbolic to say that the concept of "equivalents" is the most important principle of patent law, it is certainly one of the most important underpinnings for fairness and balancing of the rights of the public and the patentee, as recognized by Congress and by this Court.

As matters now stand, many patent practitioners that draft and prosecute patent applications shy away from means-plus-function claim limitations because of the stringent requirements and restricted scope of equivalents. Yoncha L. Kundupoglu, The Law of Means-Plus-Function Language

(Part I of II), 28 AIPLA L.Q. 39, 79 (2000) ("Therefore, the safest course for patentees is to avoid means-plus-function language to the greatest extent possible."); J.R. Kuester, Prosecuting a Patent That Holds Up in Litigation (Or, Destroying a Patent Unaware), 669 PLI/Pat. 1033, 1044 (2001) ("As a result, it has generally been good advice to avoid claiming in means-plus-function or step-plus-function formats, or at least include parallel claims not including such formats. However, such advice is sometimes easier to give then to implement . . ."); Lawrence H. Pretty, The Judicial Attack on Infringement, 619 PLI/Pat. 423, 459-60 (2000).

Surely it was not the intention of Congress to codify the law of means-plus-function claiming, including the correction of the Halliburton decision, simply to see the claim form wither and die. The Federal Circuit has effectively frustrated the intent of Congress and ignored the precedents of this Court.

III. THE SHIFTING OF THE LAW OF "EQUIVALENTS" HAS DEPRIVED PATENTEES OF BOTH CERTAINTY, AND IN SOME CASES, OF THEIR VERY PROPERTY RIGHTS

As illustrated above, the use of means-plus-function claim limitations has a history of more than 100 years. The Patent Office has welcomed the use of these limitations. There are currently nearly 2,000,000 patents that are extant. It is impossible to estimate, but it can be safely guessed that tens if not hundreds of thousands of these patents include means-plus-function claim limitations. Moreover, tens of thousands of these patents, including the patent at issue here, were written prior to the decision of the Federal Circuit Court in B. Braun, 124 F.3d 1419. Yet there was no suggestion in the law

prior to 1997 when B. Braun was rendered that it was necessary to not merely describe the corresponding structure in a patent specification but to "clearly link" that structure to the function recited in a claim limitation. There is nothing in the statute that would suggest this stringent rule applicable even to minor claim elements.

This Court has gently reminded the Federal Circuit: "To change so substantially the rules of the game now could very well subvert the various balances the PTO sought to strike when issuing the numerous patents which have not yet expired and which would be affected by our decision." Warner-Jenkinson, 520 U.S. at 32 n. 6. Justice Ginsburg made the same point in her concurring opinion.

This Court has also made a point of the Federal Circuit's broad authority to develop a consistent body of patent law in accordance with Congress' mandate. But when the court flanks precedent and legislates rather than interprets a statute, it does not consolidate and homogenize patent law, but rather improperly follows its own policy dictates rather than those of this Court and Congress.

As in the instant case, the failure to find that a structure in the specification is "clearly linked" to the function in the subject limitation can be fatal to a patent. In many cases, a failure to clearly link leads to invalidity by virtue of failing to comply with Section 112, ¶ 2. In this case, it limits the patent to apparatus claims that are entirely useless -- since analog image acquisition is archaic in this digital age. The Midco patents were drafted in 1988, long prior to the B. Braun decision. Like other patents of that era, the draftsman could not possibly conceive that there would be a "clearly linked" rule applicable to every claim limitation. It is manifestly unjust for the court to apply this rule to existing patents.

CONCLUSION

Petitioner respectfully prays that this Court grant the petition for writ of certiorari.

Respectfully submitted,

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APPENDIX A

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

Case No. 03-1032

[Filed Oct. 30, 2003]

MEDICAL INSTRUMENTATION AND DIAGNOSTICS CORPORATION,
Plaintiff-Appellee

v.

ELEKTA AB, *et al.*,
Defendants-Appellants

ORDER

A combined petition for panel rehearing and for rehearing en banc having been filed by the APPELLEE, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for panel rehearing be, and the same hereby is, DENIED and it is further

ORDERED that the petition for rehearing en banc be, and the same hereby is, DENIED.

The mandate of the court will issue on November 6, 2003.

FOR THE COURT,
/s/_____
Jan Horbaly
Clerk

Dated: October 30, 2003

APPENDIX B

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

Case No. 03-1032

[Filed Sept. 22, 2003]

MEDICAL INSTRUMENTATION AND DIAGNOSTICS CORPORATION,
Plaintiff-Appellee,

v.

ELEKTA AB, ELEKTA INSTRUMENT AB, ELEKTA INSTRUMENTS, INC., and ELEKTA ONCOLOGY SYSTEMS, INC.,
Defendants-Appellants.

JUDGES: Before NEWMAN, CLEVENGER, and SCHALL, Circuit Judges. Opinion for the court filed by Circuit Judge CLEVENGER. Dissenting opinion filed by Circuit Judge NEWMAN.

OPINION: CLEVENGER, Circuit Judge.

Elekta AB, Elekta Instrument AB, Elekta Instruments, Inc., and Elekta Oncology Systems, Inc. (collectively "Elekta") appeal the judgment of the United States District

Court for the Southern District of California, which denied Elekta's motion for judgment as a matter of law ("JMOL") that its products do not infringe United States Patents No. 5,099,846 ("'846 patent") and No. 5,398,684 ("'684 patent"). *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 2002 U.S. Dist. LEXIS 26812, No. 97-CV-2271 (S.D. Cal. Sept. 6, 2002) (Order denying JMOL). Elekta also appeals the district court's grant of partial summary judgment in favor of Medical Instrumentation and Diagnostics Corp. ("MIDCO") that the '846 and '684 patents are not invalid. *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 2001 U.S. Dist. LEXIS 25454, No. 97-CV-2271 (S.D. Cal. Nov. 5, 2001) (Order granting partial summary judgment of noninvalidity). Because the district court erred in its construction of the "converting means" limitation and noninfringement is conceded under the correct claim construction, we reverse the district court's denial of JMOL of noninfringement. We also reverse the grant of summary judgment of noninvalidity because Elekta brought forth sufficient evidence to raise a genuine issue of material fact as to the validity of the '846 and '685 patents. We thus remand the case to the district court on that issue, and for judgment in favor of Elekta on the infringement issue.

I

MIDCO is the holder of the '846 and '684 patents, both of which relate to a system for planning surgical treatment using a presentation of images from multiple scanning sources. The '684 patent is a continuation of the application that matured into the '846 patent, and it is subject to a terminal disclaimer. The disclosure of both patents is particularly directed toward stereotactic surgery, which is a type of brain surgery that uses a three-dimensional coordinate

system to locate the site on which the surgeon is to operate. Dorland's Medical Dictionary 1699 (29th ed. 2000).

Performing surgery on the human brain is extremely complex, and pre-surgical planning is especially important because any surgical exploration of a patient's brain is very risky. Therefore, it is very advantageous if, prior to surgery, a surgeon can map out exactly where the problem areas are by using techniques to "visualize" the patient's brain. Stereotactic surgical techniques allow the surgeon to "explore" the brain structures that cannot be seen from the surface by determining their location using "a knowledge of their coordinates in space relative to known anatomical and topographical landmarks." '684 patent, col. 1, ll. 31-33. In order to avoid opening a patient's skull any more than is necessary, stereotactic surgery is essentially done "blind," using electrodes attached to certain target areas as landmarks. *Id.*, col. 1, ll. 36-40. Although the location of the probes in the brain structures is very critical, it is difficult for the surgeon to conceptualize that location because the probe is out of sight and the position of the probe involves many complex angular variables. *Id.*, col. 1, ll. 40-60.

The invention disclosed in the '846 and '684 patents attempts to enhance the surgeon's ability to conceptualize the structures inside the brain by combining stereotactic surgical techniques with various imaging technologies, including computerized axial tomography ("CT") and nuclear magnetic resonance ("NMR") scanning. The specification explains the goal as follows: "The present invention is primarily concerned with the use of computer-graphics techniques and scanning techniques for generating various composite images to better aid the stereotactic surgeon in localizing structures, such as subcortical structures, lesions, or abnormalities." *Id.*, col. 2, ll. 31-36. The use of imaging techniques increases the

resolution, which allows for direct rather than inferential identification of brain structures and therefore allows for more accurate performance of stereotactic surgery.

Both the '846 and the '684 patent describe a "method and apparatus for generating a video presentation of images from a variety of separate scanner imaging sources." '846 patent, col. 6, ll. 24-26; '684 patent, col. 6, ll. 25-27. The apparatus of the invention comprises a number of different structures that work together to create this presentation of images. The apparatus can acquire image data from different scanner sources, and then convert that image data into a selected digital format. To perform the conversion into the selected format, the apparatus takes the images from the different scanner sources and converts them into a format in which the images have the same number of pixels in the same arrangement (a one-to-one pixel arrangement), which allows them to be readily compared to one another. The apparatus also stores the images and is capable of selectively recalling and displaying at least two of them on a single screen. The images on the screen may be independently manipulated, and preferably also shaped and sized so that they conform to one another, allowing for optimum comparison. Furthermore, the apparatus of the invention can also perform various comparison techniques on the images and use the images to determine stereotactic coordinates.

The preferred use of the apparatus of the invention is in stereotactic surgery, such as tumor biopsies, thalamotomies, and treatment of other neurological disorders. '684 patent, col. 9, ll. 62-68. Not only may it be used to assist the surgeon in accurate planning of such surgical procedures beforehand, but the preferred embodiment may also be used by the surgeon during a surgical procedure to view and compare images. An infrared beam touch screen interface allows the

surgeon to communicate directly with the system in a sterile manner while the surgeon is performing a procedure. *Id.*, col. 10, ll. 10-17.

In 1997, MIDCO filed a patent infringement suit against Elekta in the United States District Court for the Southern District of California, alleging that Elekta's GammaKnife, GammaPlan, ScopePlan, and SurgiPlan products infringed the '846 and '684 patents. Elekta asserted affirmative defenses and counterclaims of noninfringement and invalidity. The only independent claims asserted by MIDCO in this litigation were claim 1 of the '684 patent and claim 9 of the '846 patent, both of which are apparatus claims. Claim 1 of the '684 patent reads as follows:

> An apparatus for generating a presentation of images from a variety of imaging sources, the apparatus comprising:
>
> means for acquiring a plurality of images from a plurality of separate imaging sources;
>
> means for converting said plurality of images into a selected format;
>
> means for storing said plurality of images;
>
> means for selectively recalling and displaying at least two images of said plurality of images upon a single display device;
>
> means for manipulating at least one of said at least two images independently of the other image;
>
> means for comparing at least two images;

> means for determining stereotactic coordinates and performing volumetric determinations from said at least two images; and means for determining distances and areas from said at least two images.

'684 patent, col. 19, ll. 14-32. Claim 9 of the '846 patent is very similar, but it specifically claims only the use of brain images. '846 patent, col. 19, l. 55 - col. 20, l. 11.

After holding a Markman hearing, the district court issued an order construing the claims and a later order granting in part and denying in part Elekta's motion for clarification of the claim construction. *Med. Instrumentation & Diagnostics Corp. v. Elekta AB,* 2001 U.S. Dist. LEXIS 25448, No. 97-CV-2271 (S.D. Cal. Apr. 4, 2001) (First claim construction order); *Med. Instrumentation & Diagnostics Corp. v. Elekta AB,* 2001 U.S. Dist. LEXIS 25451, No. 97-CV-2271 (S.D. Cal. July 13, 2001) (Partial clarification of claim construction). The district court construed the claims by analyzing claim 1 of the '684 patent, concluding that the analysis for the '846 patent would be essentially the same. The parties do not dispute this treatment.

The district court construed the function of the "means for converting said plurality of images into a selected format" to be converting multiple acquired images into a particular selected digital format. The court then found that the structures corresponding to this function were the VME bus based framegrabber video display board, the computer video processor ("CVP"), and "software routines for converting digital-to-digital known to those of skill in the art." The framegrabber and the CVP both perform only the conversion of analog data into the selected digital format, known as analog-to-digital conversion. The accused devices do not

perform analog-to-digital conversion, but rather only perform digital-to-digital conversion using software. The patentee concedes that the accused devices do not have a framegrabber or anything that could be considered an equivalent. The key dispute between the parties is whether the district court was correct in including software for digital-to-digital conversion as a corresponding structure for the converting means. If so, the judgment of infringement is correct; if not, that judgment is incorrect.

MIDCO filed a motion for partial summary judgment that its patents were not invalid, and the district court granted this motion. The case was then submitted to a jury, which found that the patents were infringed and awarded $16 million in damages. The district court denied Elekta's motions for JMOL following the verdict.

Elekta now appeals to this court, arguing that the district court's claim construction was erroneous as to a number of claim terms, that JMOL of noninfringement should have been granted, and that the district court erred in granting partial summary judgment of noninvalidity. We have jurisdiction over this appeal pursuant to 28 U.S.C. § 1295(a)(1).

II

We review the district court's denial of JMOL of noninfringement by reapplying the JMOL standard, under which we reverse the denial of the motion "only if the jury's factual findings are not supported by substantial evidence or if the legal conclusions implied from the jury's verdict cannot in law be supported by those findings." *Cybor Corp. v. FAS Techs.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc).

Determination of infringement is a two-step analysis, with the first step being to ascertain the meaning and scope of the patent claims and the second step being to compare the properly construed claims to the allegedly infringing device. *Markman v. Westview Instruments*, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). The first step, construction of the claims, is a question of law subject to de novo review. *Cybor*, 138 F.3d at 1454. The second step, comparison of the claims with the accused device, is a question of fact. *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998).

We review the district court's grant of summary judgment de novo. *Golan v. Pingel Enter., Inc.*, 310 F.3d 1360, 1367 (Fed. Cir. 2002).

III

Elekta asserts that the district court made a number of errors in claim construction, but we will only focus on the construction of the "means for converting," as we find it to be dispositive of the infringement issue. There is no dispute that this limitation is written in means-plus-function form and falls under 35 U.S.C. § 112, ¶ 6. Section 112, paragraph 6 provides: "An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure . . . in support thereof, and such claim shall be construed to cover the corresponding structure . . . described in the specification and equivalents thereof." 35 U.S.C. § 112, ¶ 6 (2000). The first step in the construction of a means-plus-function claim element is to identify the particular claimed function. *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999). The second step in the analysis is to look to the specification and identify the corresponding structure for

that function. *Id.* Under this second step, "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *B. Braun Medical v. Abbott Lab.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997).

The district court construed the function for the "means for converting" limitation to be converting multiple acquired images into a particular selected digital format and the structures corresponding to this function to be the framegrabber, the CVP, and "software routines for converting digital-to-digital known to those of skill in the art." Elekta asserts that the district court's inclusion of software for digital-to-digital conversion as corresponding structure was erroneous. According to Elekta, the only disclosed structures that the patents associate with the converting function are the framegrabber and the CVP. Elekta points out that, although some types of software are certainly disclosed in the specification, such software is clearly linked to other functions, such as the "means for manipulating" the images.

MIDCO argues that, in addition to the framegrabber and the CVP, the district court correctly found that software is also disclosed as corresponding structure for the converting function. It points to three places in the specification that it asserts expressly and adequately disclose software as corresponding structure for the conversion function: (1) the "Image Format Conversion" box in the block diagram of Figure 1, (2) the reference to "image format conversion" in the specification, '684 patent, col. 10, l. 28, and (3) the reference to "image editing" in the specification, *Id.*, col. 11, l. 43.

We conclude that the district court correctly construed the function of the "means for converting" to be converting the acquired images into a particular selected format. The district court also correctly found both the framegrabber and the CVP to be corresponding structures. The specification clearly links these structures with the function of converting the acquired images into a selected format. *See* '684 patent, col. 16, ll. 4-6 ("[The VME bus based framegrabber video display board] is capable of converting a standard (RS-170) or non-standard video signal to a digital format which is stored in its memory."); *Id.*, col. 17, l. 65 - col. 18, l. 2 ("At the level of the computer video processor unit, the non-standard video signal is analyzed and converted by the system's signal processor and converted to a standard RS-170 video output which then is output to the VME bus based framegrabber display board."). However, the district court erred by identifying software as an additional corresponding structure for this limitation. There is nothing in the specification or prosecution history that clearly links or associates software with the function of converting images into a selected format.

The duty of a patentee to clearly link or associate structure with the claimed function is the quid pro quo for allowing the patentee to express the claim in terms of function under section 112, paragraph 6. *Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1377 (Fed. Cir. 2001). Section 112, paragraph 6 was intended to allow the use of means expressions in patent claims without requiring the patentee to recite in the claims all possible structures that could be used as means in the claimed apparatus. *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997). However, "the price that must be paid for use of that convenience is limitation of the claim to the means specified in the written description and equivalents thereof." *Id.* If the specification is not clear as to the structure that the patentee intends to correspond to the

claimed function, then the patentee has not paid that price but is rather attempting to claim in functional terms unbounded by any reference to structure in the specification. Such is impermissible under the statute.

The requirement that a particular structure be clearly linked with the claimed function in order to qualify as corresponding structure is also supported by the requirement of 35 U.S.C. § 112, ¶ 2 that an invention must be particularly pointed out and distinctly claimed. *B. Braun*, 124 F.3d at 1424-25. "The requirement that the claims 'particularly point[] out and distinctly claim[]' the invention is met when a person experienced in the field of the invention would understand the scope of the subject matter that is patented when the claim is read in conjunction with the rest of the specification." *S3, Inc. v. nVIDIA Corp.*, 259 F.3d 1364, 1367 (Fed. Cir. 2001). Although indefiniteness of the claims is not an issue in this case because the specification does disclose the framegrabber and CVP as corresponding structures for the function of converting images, a failure to associate software with the converting function is a failure to particularly point out and claim that particular structure as a means of performing the function. *See B. Braun*, 124 F.3d at 1425 ("Because Braun's specification does not adequately disclose the valve seat as structure that holds the disc firmly in place, Braun has failed to particularly point out and distinctly claim that particular means.").

In this case, even the district court acknowledged that the link between software and the converting function was not completely clear. The court stated that "the specification is not very explicit in its disclosures of a means for performing a digital-to-digital conversion." Nevertheless, the court concluded that because techniques for performing those conversions were known to those of skill in the art at the time

the application was filed, a person of skill in the art would understand software to be a corresponding structure for the converting function. It is of course correct that to answer the question of whether the specification adequately describes and links structure that corresponds to the claimed function, we must look at the disclosure from the point of view of one skilled in the relevant art. *Budde*, 250 F.3d at 1376. MIDCO presented some evidence before the district court that a skilled programmer at the time of the application's filing could have written a program for digital-to-digital conversion of image size, and we have no reason to doubt that assertion. In discussing software programs in the medical imaging field, MIDCO's expert explained that "a software programmer having ordinary skill in the art . . . would be aware of the sources of routines, modules and even small programs . . . that could be incorporated into the larger program being developed. These programs were widely available from well-known sources or available from other software developers. . . ." MIDCO then provided examples of programs for digital-to-digital image conversion (none of which are cited in the patents) that would have been available at the time the patent was filed.

However, that is not the correct inquiry. The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass software for digital-to-digital conversion and been able to implement such a program, not simply whether one of skill in the art would have been able to write such a software program. *See Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1380 (Fed. Cir. 1999) ("Interpretation of what is disclosed must be made in light of the knowledge of one skilled in the art."); *see also Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314 (Fed. Cir. 2003) (explaining that statements from experts cannot be used to "rewrite the

patent's specification" to create a clear link where the language in the specification provides none); *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1313 (Fed. Cir. 2001) (finding particular structures not to be corresponding structures because "one skilled in the art would not perceive any clear link or association between these structures and the [recited] function of connecting adjacent elements together"). It is important to determine whether one of skill in the art would understand the specification itself to disclose the structure, not simply whether that person would be capable of implementing that structure. *See Atmel*, 198 F.3d at 1382 ("Fulfillment of the § 112, ¶ 6 trade-off cannot be satisfied when there is a total omission of structure. There must be structure in the specification."). Indeed, the requirement of looking to the disclosure to find the corresponding structure comes from section 112, paragraph 6 itself. It is not proper to look to the knowledge of one skilled in the art apart from and unconnected to the disclosure of the patent.

Here, MIDCO's expert never pointed to any disclosure of structure for digital-to-digital conversion in the specification. Instead, when asked about digital-to-digital conversion in the patents, he explained as follows: "The actual aspects of changing the digital format from one, for instance, number of pixels to another number of pixels, is not disclosed or discussed in the document, presumably . . . because it was well-known in the art and required no explanation."

We turn now to the three portions of the specification that MIDCO alleges to disclose software for digital-to-digital conversion as corresponding structure for the means for converting and MIDCO's other arguments as to where we may find the link between software and conversion. We conclude that there is nothing in the specification or

prosecution history sufficient to disclose software that is clearly linked to the converting function.

A

The "Image Format Conversion" box in Figure 1 of both patents is not a depiction of structure. This figure is described as illustrating the steps of the preferred method of the invention, not the structure of the apparatus that is the subject of the asserted claims. '684 patent, col. 9, ll. 44-45. Because the figure does not describe structure at all, and there is no indication that one skilled in the art would understand it to do anything other than list the steps of the method, it cannot serve to clearly link software as a corresponding structure for the function of converting the images into a selected format.

This is not like the situation in *Overhead Door Corp. v. Chamberlain Group, Inc.*, 194 F.3d 1261 (Fed. Cir. 1999), where we held that the district court erred in finding that the corresponding structure for the "memory selection second switch means" included only the mechanical switch embodiment shown in one of the figures of the patent and did not include the software embodiment illustrated by a flow diagram in a different figure. This court held that the software embodiment should also be included as an alternative corresponding structure. *Id.* at 1272. The software embodiment was clearly linked to the claimed function of the means limitation. *Id.* First, expert testimony indicated that one of skill in the art would understand the relevant portions of the flow diagram to describe software operations for performing the claimed function. *Id.* Second, the prosecution history contained an explicit statement that the "switch means includes electronic as well as manual switches." *Id.* Therefore, the flow diagram figure of the patent at issue in Overhead Door would have been understood by one of skill

in the art to clearly link a software embodiment to the recited function. In contrast, the "Image Format Conversion" box in Figure 1 of the patents in suit refers to the method claims rather than the apparatus claims at issue, and there is no evidence that it would be understood by one skilled in the art to refer to structure at all, let alone to software for digital-to-digital conversion.

That Figure 1 is not a depiction of structure at all is made even clearer by the fact that the patents include two figures actually depicting structure. Figure 2 of the patents in suit is a block diagram for depicting the preferred hardware of the invention. One of the blocks in Figure 2 is labeled "Computer Video Signal Processor," and the specification explains that in this component, the "scanning data, which is in various, typically non-standard formats, is convertible to a standard format in accordance with the invention." '684 patent, col. 10, l. 66 - col. 11, l. 1. The figure also has a block labeled "Central Processing Unit," and the specification explains that the "central processing unit (CPU) . . . preferably comprises hard disc storage, floppy disc storage, streamer tape storage, and a high-resolution frame grabber with a high speed graphics and video image processor." *Id.*, col. 11, ll. 8-13. Figure 3 is a depiction of the preferred apparatus, and none of the numbered components of the figure refer to software. Therefore, the two structures clearly linked by the specification to the converting function are depicted in the figures of the patent, while software for digital-to-digital conversion is not. As noted above, the disclosed structures perform analog-to-digital conversion, but do not perform digital-to-digital conversion.

If the box in Figure 1 labeled "Image Format Conversion" actually referred to some structure instead of simply referring to a step in the claimed method, then the situation may well

be different. In past cases, we have been generous in finding something to be a corresponding structure when the specification contained a generic reference to structure that would be known to those in the art and that structure was clearly associated with performance of the claimed function. For example, in *Intel Corp. v. VIA Technologies, Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003), we found that the "core logic" modified to perform a particular program was adequate corresponding structure for a claimed function although the specification did not disclose internal circuitry of the core logic to show exactly how it must be modified. The core logic was described as structure in the specification, and the specification explained that it was the adapted core logic that was capable of performing the functions recited in the claim. *Id.* There was no need for a disclosure of specific circuitry in that case, just as here there would be no need for a disclosure of the specific program code if software were linked to the converting function and one skilled in the art would know the kind of program to use. However, in this case, the "Image Format Conversion" box does not refer to a type of structure, so it does not serve to link software to the converting function. It would be more like the situation in *Intel* if the box in Figure 1 were labeled as "Image Conversion Software" or if it at least appeared in a figure illustrating the components of the apparatus.

Similarly, in *S3, Inc. v. nVIDIA Corp.*, 259 F.3d 1364, 1370-71 (Fed. Cir. 2001), we concluded that a "selector" was adequately disclosed as corresponding structure for the "means . . . for selectively receiving," although the electronic structure of the sensor and the details of its operation were not described. The selector referred to in the disclosure and drawings of the patent was clearly a type of structure, unlike the reference to "Image Format Conversion" in the '846 and '684 patents. There was testimony that the selector was a

standard component well known in the art and that such standard components were usually represented in the same way that they were in the patent. *Id.* at 1370. There was also testimony that one skilled in the art would "recognize that the selector as shown in the specification [was] an electronic device such as a simple multiplexer, whose structure [was] well known." *Id.* Unlike the evidence in the case before us, which fails to connect what is disclosed in the specification with the knowledge of one skilled in the art, the testimony in *S3, Inc.* showed that one of skill in the art would recognize that the specification clearly linked a particular structure to the claimed function. There is no indication in this case that one skilled in the art would understand the "Image Format Conversion" box to refer to software for the conversion function.

Budde v. Harley-Davidson, Inc., 250 F.3d 1369 (Fed. Cir. 2002), is yet another example of this line of cases. In Budde, we held that the district court correctly found that a patent disclosed adequate corresponding structure for a "status sensing means." *Id.* at 1381. Part of the function was to measure vacuum in the intake manifold, and the specification explained that "vacuum sensors are commercially available units which produce analog signals for the control unit." *Id.* (internal quotation marks omitted). The patent also contained a block diagram that included a box labeled "vacuum sensor." *Id.* We found that the specification's description of the vacuum sensor as a "commercially available unit" would have been understood by a person skilled in the art to disclose structure capable of performing the recited function. *Id.* at 1382. Unlike the specifications of the patents in suit, the specification in *Budde* disclosed a generic structure that was clearly linked to the claimed function.

Unlike the situations in our previous cases where we have found some link between a generic structural reference and a claimed function, there is nothing in this case to link the "Image Format Conversion" box of Figure 1 of the patents in suit to the function of converting images into a selected digital format.

B

The second portion of the specification that MIDCO asserts discloses software for digital-to-digital conversion as corresponding structure for the means for converting is another reference to "image format conversion." '684 patent, col. 10, l. 28. The specification explains as follows:

> The method of the invention is illustrated in FIG. 1. The method of the invention comprises scanning 10 the patient's head or other body part(s); image acquisition 12 of the scans obtained; image format conversion 14 for all images so that they are converted into the same format; image storage 16; multiple image recall and display 18 of the images; and image manipulation and comparison 20.

Id., col. 10, ll. 25-32 (emphasis added). Again, this is simply a description of Figure 1, which, as discussed above, illustrates the method of the invention rather than the apparatus. There is no evidence that one skilled in the art would understand the phrase to refer to software for digital-to-digital conversion. Therefore, this reference to "image format conversion" also does not serve to clearly link software as a corresponding structure for the function of converting the images into a selected format.

C

The third and final place in the specification that MIDCO points to as disclosing software as a corresponding structure for the means for converting is a reference to "image editing." '684 patent, col. 11, l. 43. The full passage of the specification reads as follows:

> The division for image acquisition, enhancement, and manipulation includes modular software subroutines for: 1) image capture, storage, and archiving; 2) pixel analysis for an entire image or user-defined areas of interest; 3) zoom and pan functions; 4) contrasting and filtering images with functions for smoothing, sharpening, and pseudocoloring; 5) image comparisons; 6) image editing; and 7) various edge detection routines. . . .

Id., col. 11, ll. 36-44 (emphases added). Unlike the reference to "Image Format Conversion" in Figure 1 and the related discussion of "image format conversion" in the specification, this quoted portion of the specification describes software. However, there is no evidence that one of skill in the art would understand the use of the phrase "image editing" as a reference to the function of converting images into a selected digital format. The quoted passage is prefaced by the statement that "software, provided in the CPU 34, is preferably structured on a multi-modular bi-divisional foundation, which comprises a division for image acquisition, enhancement and manipulation and a division for graphics and user specific functions." '684 patent, col. 11, ll. 32-36. If the patentee had wanted to link "image editing" to the function of converting images, all that would have been necessary was to add "conversion" to the list of divisions that the software contains. As it is actually written, there is nothing to indicate

that conversion is one of the functions performed by the described software or that one skilled in the art would understand that the software described in the specification performs digital-to-digital image conversion. The reference to "image editing" in this discussion of software is insufficient to clearly link software to the converting function.

This portion of the specification clearly links software to the claimed functions of acquiring and manipulating the images and may therefore appropriately be considered a corresponding structure for those functions. However, MIDCO would have us hold that software is also a corresponding structure for the converting function, even though the reference to software is not clearly linked to the claimed converting function.

In the past, we have rejected similar attempts to include as additional corresponding structure for a particular function a structure that is disclosed in the specification but is not associated with the particular claimed function. In *B. Braun*, we held that, although the specification showed a valve seat, it was not corresponding structure for the recited function of holding the flexible disc against the triangular member to restrain sideways movement because there was no clear link between this structure and the function in the specification or prosecution history. *B. Braun*, 124 F.3d at 1425. We explained that "this lack of association between the valve seat and the recited function is especially striking given the explicitly clear association provided between the transverse cross bar and the recited function." *Id.* That is quite similar to the situation in this case, where the specification clearly links the framegrabber and CVP to the converting function, but does not link software to that function, though software is disclosed in the specification.

Also, in *Medtronic, Inc. v. Advanced Cardiovascular Systems, Inc.*, 248 F.3d 1303 (Fed. Cir. 2001), we rejected a similar attempt by a patentee to include, as additional corresponding structure for one function, structure that was not clearly linked to that function but was clearly linked in the specification to a different function. The claim limitation at issue in Medtronic was a "means for connecting adjacent elements together," and the patentee alleged that the specification disclosed multiple corresponding structures. *Id.* at 1311. The parties did not dispute that the helical windings were corresponding structure, as the specification clearly linked them to the function. Rather, the issue was whether the straight wire, hooks, and sutures were also corresponding structure. *Id.* This court held that the windings were the only corresponding structure because, although the straight wire, hooks, and sutures were capable of performing the connecting function, neither the specification nor the prosecution history clearly linked or associated them with that function. *Id.* at 1312. In fact, similar to this case where software is described in the specification as performing other functions, the straight wire, hooks, and sutures were described in the specification as having the function of preventing overstretch of the formed coil. We concluded in Medtronic that "one skilled in the art would not perceive any clear link or association between [the straight wire, hooks, and sutures] and the function of connecting adjacent elements together." *Id.* at 1313. We reach a similar conclusion in this case: there is no evidence that one of skill in the art would perceive a clear link between software and the function of converting images into a selected digital format.

D

In addition to the three specific places in the specification that MIDCO asserts link software to the function of digital-to-

digital conversion, MIDCO also raises an additional argument to support the district court's judgment. MIDCO argues that its expert testimony that software programs for digital-to-digital conversion were known in the art, combined with the statement in the specification that "other programs used in practicing the invention, such as image manipulation programs, are either commercially available or within the skill of practitioners in the programming arts," '684 patent, col. 12, ll. 24-27, is sufficient for one skilled in the art to understand how the function of converting is performed and therefore enough to make software a corresponding structure. We disagree.

MIDCO relies on our decision in Atmel, where we found that, based on the knowledge of one skilled in the art, sufficient structure was disclosed for a high voltage generating means when "the specification plainly stated that 'known circuit techniques are used to implement high voltage circuit 34. *See* On-Chip High Voltage Generation in NMOS Integrated Circuits Using an Improved Voltage Multiplier Technique, IEEE Journal of Solid State Circuits.'" *Atmel*, 198 F.3d at 1382. This case is different in at least two significant respects. First, the "known techniques" referred to in *Atmel* are quite clearly linked to the high voltage generating means. In the patents in suit, the references to commercially available software or software known in the art are not discussed in connection with the means for converting. Second, Atmel's expert had actually testified that the title of the article was enough to indicate to a person skilled in the art the precise corresponding structure contemplated by the specification. *Id.* There is no comparable evidence in this case to indicate that a person skilled in the art would actually understand from the specification that software for digital-to-digital conversion was structure that corresponded to the means for converting. This may be a different case if the specification contained a

statement suggesting that digital-to-digital conversion can be performed by software programs known to those of skill in the art. A statement in the specification referring to the knowledge of those skilled in the art specific to the claimed function would put it closer to the lines we have drawn in other cases such as *Atmel*.

Another example of this type of situation is *In re Dossel*, 115 F.3d 942, 946 (Fed. Cir. 1997), which involved a claim for a "means for reconstructing." The Patent and Trademark Office found the claim to be invalid for failing to adequately disclose any corresponding structure for the reconstructing function. This court concluded that the specification sufficiently disclosed a computer as corresponding structure. *Id.* Although the specification did not use the term "computer," it described a structure that "received digital data, performed complex mathematical computations and output[] the results to a display," and we concluded that one of skill in the art of medical imaging would understand that a computer must be the structure to perform these functions. *Id.* at 946-47. Further, although no code that the computer would use to perform the functions was disclosed, the specification did explain that "known algorithms" could be used in the reconstruction process. *Id.* at 946.

In contrast to *Dossel*, the specifications of the '846 and '684 patents do not clearly link known software to the converting function. Although the specification refers to the use of software programs that "are either commercially available or within the skill of practitioners in the programming arts," '684 patent, col. 12, ll. 26-27, this statement in no way links software to the function of converting images into a selected format. There is no indication that it is referring to commercially available programs for conversion. Even if one skilled in the art would

know that software is capable of performing the function of converting images into a selected format, there is nothing in the patents to suggest that it must be the structure that would perform the function in this invention. There must be something in the disclosure to indicate to the public that the patentee intends for a particular structure to correspond to a claimed function. It is not enough simply to list a certain structure in the specification; that structure must also be clearly linked to a claimed function in order to be a corresponding structure for that function. Furthermore, in this case, the specifications clearly describe the framegrabber and the CVP as performing the converting function, so, unlike Dossel, it is not necessary to find software to be corresponding structure to save the claim from being found invalid.

The circumstances of this case are quite similar to those in *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed. Cir. 2002). In *Texas Digital*, we held that the district court erred in its construction of "converter means" because "'the court's description of the corresponding structure as 'including firmware, software, and/or hardware' has no basis in the specification." *Id.* at 1213. The specification had disclosed an inverter that was linked to the converting function, but Texas Digital Systems had argued that it presented expert testimony "that one of skill in the art would have appreciated that the converter means could be implemented in hardware, software, and/or firmware." *Id.* We concluded that the district court failed to properly perform the step of identifying the corresponding structure because, rather than looking to the specification, which is the proper place to look to determine what structure is disclosed that corresponds to the claimed function, it "identified a broad array of possible structures not mentioned anywhere in the specification." *Id.* In the case currently before us, software is

mentioned in the specification, but it is mentioned nowhere in connection with the converting function. However, as in *Texas Digital*, there is other structure in the specification that is clearly linked to the converting function. Also, similar to the patentee in *Texas Digital*, MIDCO presented some evidence suggesting that a software program for digital-to-digital conversion would have been within the knowledge of one skilled in the art, but nothing to connect that testimony to what one of skill in the art would understand the specification to actually disclose.

Finally, none of the other references to software in the specification that MIDCO has not specifically called to our attention serve to clearly link software to the claimed function of converting images into a selected digital format. The specification states that "software usable with the apparatus hardware to practice and to carry out the desiderata of the invention is disclosed herewith." '684 patent, col. 12, ll. 14-16. Obviously, the specification itself does not disclose any software routine for digital-to-digital conversion, as MIDCO's expert even admitted. Additionally, the software routines that are appended to the patents do not deal with conversion. The specification explains what types of programs are included in the microfiche appendix, and none of the programs deal with conversion. *Id.*, col. 18, ll. 48-57. The reference to "image manipulation programs" that are commercially available, *Id.*, col. 18, ll. 57-58, similarly does not link software to the converting function, but only to the manipulating function. Furthermore, the statement that "the CPU controls all data inflow and outflow through its special software programs," *Id.*, col. 18, ll. 41-42, does not serve as a clear link between software and the converting function. There is nothing to indicate that this statement would be understood to refer to digital-to-digital conversion of images, especially since the statement appears right before the listing of appended

software programs, which does not include a program for image conversion.

E

In addition to there being nothing in the specification to clearly link or associate software with the function of converting images, there is also nothing in the prosecution history to provide this link. During prosecution of the '846 patent, the applicant prepared a chart to distinguish the claims over the Umemura reference. One of the points of comparison in the chart was whether the system was "Solely an A/D [analog-to-digital] Conversion System." In the column labeled "Present Invention" the applicant marked "no," while in the column for Umemura the applicant marked "yes." This may indicate that the applicant intended for the invention to cover digital-to-digital conversion, although the framegrabber and the CVP only perform analog-to-digital conversion. However, it is not sufficient to provide a clear link of software for digital-to-digital conversion to the claimed function of converting images into a selected digital format. There is no reference to software in that portion of the prosecution history, and there is nothing to suggest that one of skill in the art would know from that table that software must be the structure to perform the conversion.

F

We therefore conclude that the district court erred in identifying software as a corresponding structure for the means for converting because the specification and prosecution history fail to clearly link or associate software with performance of the converting function. The requirement that structure must be clearly linked or associated with the claimed function is the quid pro quo for the convenience of

claiming in functional terms. *See Budde*, 250 F.3d at 1377. MIDCO is attempting to avoid its part of the section 112, paragraph 6 bargain by asserting as corresponding structure for the converting function a structure that is not linked to that function in the specification or prosecution history. In order for the claims to serve their proper function of providing the public clear notice of the scope of the patentee's property rights, we cannot allow a patentee to claim in functional terms essentially unbounded by any reference to what one of skill in the art would understand from the public record. The scope of a claim under section 112, paragraph 6 therefore must be limited to structures clearly linked or associated with the claimed function in the specification or prosecution history and equivalents of those structures. Here, the only two structures that are clearly linked to the converting function are the framegrabber and the CVP. Because MIDCO has conceded that the accused devices do not contain these structures or their equivalents, we reverse the judgment of infringement, and remand for entry of judgment in favor of Elekta on the issue of infringement.

To be sure, the patentee clearly and emphatically selected the framegrabber and the CVP as structure that corresponds to the claimed converting function. And equally to be sure, one of ordinary skill in the art could have written the software program to achieve digital-to-digital conversion. So, it may be tempting to say that this patentee should not be required to turn square corners when it comes to disclosing structure in the specification that is clearly linked to the claimed conversion function. Why not simply require the patentee to disclose some structure for conversion, such as the framegrabber or CVP, and then permit the patentee to claim infringement by some other structure, such as software, so long as one of ordinary skill in the art could have written the software program to perform the claimed function? The

reason, of course, is because the statute itself requires disclosure of corresponding structure in the specification, and that disclosure must clearly link the disclosed structure to the claimed function with which it is associated. The public should not be required to guess as to the structure for which the patentee enjoys the right to exclude. The public instead is entitled to know precisely what kind of structure the patentee has selected for the claimed functions, when claims are written according to section 112, paragraph 6. This is precisely the point we emphasized in *Atmel*, where we stated:

> All one needs to do in order to obtain the benefit of [§ 112, ¶ 6] is to recite some structure corresponding to the means in the specification. . . . The requirement of specific structure in § 112, ¶ 6 thus does not raise the specter of an unending disclosure of what everyone in the field knows that such a requirement in § 112, ¶ 1 would entail. If our interpretation of the statute results in a slight amount of additional written description compared with total omission of structure, that is the trade-off necessitated by an applicant's use of the statute's permissive generic means term.

Atmel, 198 F.3d at 1382.

The established rules in our case law on section 112, paragraph 6 that structure corresponding to the claimed function must be disclosed in the specification with clear linkage between the structure and the claimed function serve worthy goals. Such rules are intended to produce certainty in result. Precision in claiming is not an unreasonable price to pay to gain the benefits of claiming in functional terms under section 112, paragraph 6.

IV

Elekta also challenges the district court's grant of summary judgment that the patents are not invalid. Summary judgment is only appropriate if the evidence fails to create a genuine issue of material fact. Fed. R. Civ. P. 56(c). Furthermore, all factual inferences are to be drawn in favor of the nonmoving party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255, 106 S. Ct. 2505, 91 L. Ed. 2d 202 (1986). Anticipation is a question of fact, *Atlas Powder Co. v. Ireco, Inc.*, 190 F.3d 1342, 1346 (Fed. Cir. 1999), and obviousness is a question of law based on underlying facts, *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1349 (Fed. Cir. 2002). When looking at this proferred evidence of invalidity, it must be kept in mind that issued patents enjoy a presumption of validity, and therefore the evidence to show invalidity must be clear and convincing. *Schumer v. Lab. Computer Sys.*, 308 F.3d 1304, 1315-16 (Fed. Cir. 2002).

Elekta's expert testimony in this case is not of the type that we have found to be insufficient as a matter of law to raise a genuine issue of invalidity in the past. Rather than leaving the trial judge to "search through lengthy technologic documents for possible evidence," *Biotec Biologische Naturverpackungen v. Biocorp, Inc.*, 249 F.3d 1341, 1353 (Fed. Cir. 2001), Elekta's expert quoted the particular portions of the references that were relevant for each of the claim limitations. Furthermore, the expert did not simply make a conclusory statement that, in his opinion, the claims were invalid. *See Id.* ("It is well established that conclusory statements of counsel or a witness that a patent is invalid do not raise a genuine issue of fact."). Rather, for each claim limitation, he connected it with disclosures in the prior art that he believed taught each particular limitation.

Elekta brought forth numerous references as prior art that allegedly either anticipated or rendered obvious the claimed invention. The district court found all the references insufficient to raise a genuine issue of material fact and therefore granted summary judgment that the patents are not invalid. We conclude that Elekta presented sufficient evidence to survive a motion for summary judgment of noninvalidity, and therefore we reverse the district court's summary judgment grant.

Elekta argued that the patents were anticipated by the Kall/Kelly reference, which was noted in the prior art section of the patents during prosecution. MIDCO argues that this reference fails to disclose the "means for selectively recalling and displaying at least two images . . . upon a single display device." Elekta argues that this reference does in fact teach the means for selectively recalling and displaying when it says: "The surgeon may, at any time, review any of the imaging data by displaying and manipulating the CT, MR, and DSA images simultaneously on three independent monochrome monitors or in pseudocolor on the color monitor." The district court concluded that the reference is "ambiguous" on this point and therefore creates no genuine issue of material fact. However, Elekta presented expert testimony that the Kall/Kelly reference does teach the recalling and displaying limitation, and one of the authors of the reference also testified that Elekta's expert interpreted it correctly.

MIDCO argues that the district court was correct in concluding that the reference is too vague and argues that there is insufficient structure disclosed in the reference, citing *Scripps Clinic v. Genentech, Inc.*, 927 F.2d 1565, 1576-77 (Fed. Cir. 1991), for the proposition that a witness may only testify about what a reference would teach one of skill in the

art, but cannot "fill gaps in the reference" by supplying information that is entirely absent. However, Elekta's experts simply testified about what the Kall/Kelly reference would teach one of skill in the art, referring to specific parts of the reference. The question of what a reference teaches and whether it describes every element of a claim is a question for the finder of fact. *Advanced Display Sys. v. Kent State Univ.*, 212 F.3d 1272, 1283 (Fed. Cir. 2000). The district court concluded that the Kall/Kelly reference was "ambiguous," which suggests to us that the issue of exactly what the reference teaches is something that should have been resolved by the jury. The district court improperly usurped the role of the jury in finding that the reference failed to raise a genuine issue of material fact.

The district court also concluded that Elekta had not presented sufficient evidence to create a genuine issue of material fact on the issue of obviousness, and granted summary judgment on this ground as well. According to the district court, Elekta did "provide[] sufficient evidence from which a jury could find that each element, viewed individually, would be obvious to a person skilled in the prior art," but failed to make a clear showing that it would have been obvious to one of skill in the art to combine the various references into a single system. Although the ultimate determination of obviousness is a legal conclusion, "the presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact." *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). The suggestion or motivation to combine references does not have to be stated expressly; rather it "may be shown by reference to the prior art itself, to the nature of the problem solved by the claimed invention, or to the knowledge of one of ordinary skill in the art." *Beckson Marine, Inc. v. NFM, Inc.*, 292 F.3d 718, 728 (Fed. Cir. 2002).

The district court explained that MIDCO's invention "seems to center around combining stereotaxy with composite images." It is the motivation to combine these two elements that is critical. Elekta's expert's declaration quotes from several prior art articles that expressly discuss the combination of stereotaxy with computer imaging technologies. For example, one reference explains that "stereotaxy is the surgery of the hidden. The need to visualize the hidden is the reason why simulation by computer graphics technology is necessarily becoming part of this discipline." Additionally, the declaration of Elekta's expert suggested that the papers written by Fraas/McShan also provided such a motivation to combine. Elekta actually argues that these papers should be treated as a single reference and, as a single reference, it anticipates the patents. However, even if treated as multiple references, there is an issue of fact as to whether the appearance of teachings about image combination and stereotactic treatment planning in the same bound volume discussing a comprehensive system of treatment planning would provide one of skill in the art with a motivation to combine the teachings. We therefore conclude that the district court erred in finding that Elekta failed to demonstrate the existence of an issue of material fact on obviousness.

V

Because software is not clearly linked in the specification or prosecution history to the claimed function of converting images into a selected format, the district court's identification of software as a corresponding structure for the "means for converting" was erroneous. The only corresponding structures for that means are the framegrabber and the CVP, and the accused devices concededly do not contain these structures or equivalents thereof. We therefore reverse the judgment that Elekta's products infringe the '846 and '684

patents, and hold that Elekta is entitled to JMOL of noninfringement.

Additionally, we reverse the district court's grant of summary judgment of noninvalidity because Elekta presented sufficient evidence to create a genuine issue of material fact on anticipation and obviousness. The case is remanded to the district court.[1]

COSTS

No costs.

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[1] The dissent questions our remand for further adjudication on the validity issue. We do not remand on the ground of necessity under *Cardinal Chemical Co. v. Morton International, Inc.*, 508 U.S. 83, 113 S. Ct. 1967, 124 L. Ed. 2d 1 (1993). As explained above, Elekta challenges the summary judgment sustaining the validity of the patent claims in suit, asserting entitlement to a trial on the validity issue. The plaintiff patentee does not oppose the remand on the ground of mootness of the validity issue, and instead only asserts correctness of the summary judgment. Whether, in the light of our decision of noninfringement, any controversy remains between the parties sufficient to warrant further litigation on the validity issue is not a matter on which we are informed by the parties. The district court on remand can decide whether a live controversy over validity remains.

On the issue of whether the patent discloses structure that corresponds to the digital-to-digital conversion function, we simply hold that the patent does not disclose software as clearly linked to performance of digital-to-digital conversion. While it is true that one of ordinary skill in the pertinent art would know that software can perform the specified conversion function, the law requires that the specification disclose the means for conversion. In this case, nothing in the specification clearly links software to performance of digital-to-digital conversion.

AFFIRMED-IN-PART, REVERSED-IN-PART, AND REMANDED

DISSENT: NEWMAN, Circuit Judge, dissenting.

This thoroughly tried case produced not only several careful and well-considered opinions by the district court, but a month's trial to a jury. The majority now negates the rulings of the district court and the findings of the jury, and rules that digital-to-digital conversion by software is not within the scope of the disclosed "conversion." I cannot agree.

The patent specification describes every function that is included in the claims, and includes a microfiche appendix containing the software for the functions that are unique to the patented invention. The specification states that these computer-managed functions are conducted by software. Both sides testified that software routines for digital-to-digital conversion are within routine skill. The majority has created inappropriate conditions for computer-based inventions; conditions that are, nonetheless, met. Grounds of overturning the results of trial have not been shown.

I

The invention is a computer-implemented system that aids in brain surgery by providing the superposition and manipulation of images from various sources, thereby enhancing precision in visualizing the brain. The claims include the clause: "means for converting said plurality of images into a selected format." This clause is the focus of the majority opinion, and is the ground on which the claim is held not infringed.

The majority holds that "the district court erred by identifying software as an additional corresponding structure for this limitation," my colleagues finding that software is not disclosed in the specification. However, the specification states that the claimed functions are performed by software. Claims 8 and 30 of the '846 patent are specific to the use of software. E.g.:

> 8. The invention of claim 1 wherein all said means are software-programmable.

The district court correctly found that software procedures for digital-to-digital conversion were well known to persons skilled in the field. The panel majority states that "we have no reason to doubt" this finding, but also holds that it is irrelevant. The majority states:

> However, that is not the correct inquiry. The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to teach software for digital-to-digital conversion and been able to implement such a program, not simply whether one of skill in the art would have been able to write such a software program.

Maj op. at 12. The majority is not correct. The patent specification need not "teach software" and the writing of routine programs in order to teach how to practice the described method. It suffices if one of skill in the art "would have been able to write" a standard program of digital-to-digital conversion. If one of skill in the programming art would have been able to write such a program without undue experimentation, the statutory requirements are met. *See, e.g., Minnesota Mining and Manufacturing Co. v. Chemque,*

Inc., 303 F.3d 1294, 1301 (Fed. Cir. 2002) (enablement requires that the disclosure teach how to carry out the claimed invention without undue experimentation).

The specifications of both the '684 and the '846 patents, at column 11:37-43 and column 11:38-44 respectively, state that "image editing" is performed by "modular software subroutines." The district court found that "the specification is clear that digital data acquired via an Ethernet connection or magnetic transport media must be converted to a common format." In evidence were several publicly available routines for digital-to-digital procedures, including a Programmer's Manual from the commercial purveyor ITEX. Midco states that the Programmer's Manual contained "routines for changing the number of pixels in an image data file." Midco's expert explained: "The actual aspects of changing the digital format from one, for instance, number of pixels to another number of pixels, is not disclosed or discussed in the document, presumably . . . because it was well-known in the art and required no explanation." It is not clear whether the majority opinion finds its fatal flaw in the description or the enablement requirement, for compliance with both was established at trial, and is supported by the evidence at trial.

The specification included the full details of those programs that are unique to the invention, including 8 sheets of microfiche, with 65 frames per sheet. The specification stated:

> Software usable with the apparatus hardware to practice and to carry out the desiderata of the invention is disclosed herewith.
>
> The program listings in the microfiche appendix are directed to the programmed interface to computer

> video processor; an electrophysiological maps program, an anatomical maps program, a probe placement program, a stereotactic frame calibration program, an icon layout program and a touchscreen control program. These programs are unique to the invention. Other programs used in practicing the invention, such as image manipulation programs, are either commercially available or within the skill of practitioners in the programming arts.

'846 patent, 12:15-28. The panel majority appears to understand that the software programs it says are lacking are "commercially available or within the skill of ordinary practitioners," but holds that that does not suffice. Precedent is clearly contrary. For decades the rule and practice has been that such software need not be included in the specification. Over thirty years ago this court's predecessor endorsed this format, stating in *In re Ghiron*, 58 C.C.P.A. 1207, 442 F.2d 985, 991 (CCPA 1971), that "if such a selection would be 'well within the skill of persons of ordinary skill in the art,' such functional-type block diagrams may be acceptable and, in fact, preferable if they serve in conjunction with the rest of the specification to enable a person skilled in the art to make such a selection and practice the claimed invention with only a reasonable degree of routine experimentation." *See Creo Products, Inc. v. Presstek, Inc.*, 305 F.3d 1337, 1347 (Fed. Cir. 2002) ("To the extent that [Plaintiff-Appellant] contends that additional structure is required for completely performing the function of 'rotating each cylinder,' we consider such structure to be implicit in the disclosure of the '368 patent. Under our case law interpreting § 112, ¶ 6, knowledge of one skilled in the art can be called upon to flesh out a particular structural reference in the specification for the purpose of satisfying the statutory requirement of definiteness.")

The majority's finding that the use of software was not disclosed has led the court to find non-infringement under § 112, ¶ 6 . Now requiring that more must be recited than that the computerized conversion is run by software, it is far from clear what my colleagues are requiring. Is this court now requiring a five-foot-shelf of zeros and ones? These patent documents, drawn by and for professionals in the field, fully explained at trial, have not been shown to be deficient. Experts for both sides agreed that the programming for digital-to-digital conversion was routine. Elekta's expert testified: "There are numerous and varied routines and algorithms available for moving, altering and manipulating digital data." The claimed conversions are all performed by software, analog to digital or digital to digital as appropriate, as is recognized in the specification.

As the appellate tribunal, our obligation is to determine whether the jury verdict could have been reached by a reasonable jury, on the correct law and supported by substantial evidence -- not to strain for ways to reject the verdict. *See Lavender v. Kurn*, 327 U.S. 645, 653, 66 S. Ct. 740, 90 L. Ed. 916 (1946) ("Only when there is a complete absence of probative facts to support the conclusion reached does a reversible error appear. But where, as here, there is an evidentiary basis for the jury's verdict, the jury is free to discard or disbelieve whatever facts are inconsistent with its conclusion. And the appellate court's function is exhausted when that evidentiary basis becomes apparent, it being immaterial that the court might draw a contrary inference or feel that another conclusion is more reasonable.")

The evidence at trial was directly concerned with the description of the conversion step and how it was conducted. The district court ruled that "the jury had ample uncontroverted evidence that the software in the accused

products fulfills the elements of the patents as construed by the Court." There was substantial evidence supporting the jury verdict. From my colleagues inappropriate reversal of that verdict I must, respectfully, dissent.

II

The panel majority, having found noninfringement, nonetheless remands for determination of the issue of validity. However, with this court's decision, the case is over. I agree of course that *Cardinal Chemical Co. v. Morton International, Inc.*, 508 U.S. 83, 113 S. Ct. 1967, 124 L. Ed. 2d 1 (1993), requires the Federal Circuit to review validity when (as here) the district court decided validity. But *Cardinal Chemical* does not require the parties and the district court to continue to litigate when the controversy has ended. This is not a matter of discretion on remand; the case is over.

The issue before the Court in *Cardinal Chemical* was whether a finding of noninfringement by the Federal Circuit was "a sufficient reason for vacating a declaratory judgment holding the patent invalid." The Court determined that "even after affirming the finding of noninfringement" the Federal Circuit has jurisdiction to review an appeal from a declaratory judgment of invalidity, and ruled: "The Federal Circuit's practice is therefore neither compelled by our cases nor supported by the 'case or controversy' requirement of Article III." *Id.* at 99. The Court rejected the Federal Circuit's practice of routinely vacating a district court's judgment on the issue of validity after an appellate ruling of noninfringement, stating that the interests of the public, the alleged infringer, and the patentee, all require appellate review of a decision on the merits of a counterclaim on the issue of validity. The Court "acknowledged that factors in an

unusual case might justify [the Federal Circuit's] refusal to reach the merits of a validity determination -- a determination which it might therefore be appropriate to vacate. A finding of noninfringement alone, however, does not justify such a result." *Id.* at 102.

In this case, the district court on summary judgment decided Elekta's defenses on the issues of validity. *Medical Instrumentation and Diagnostics Corp. v. Elekta AB*, 2001 U.S. Dist. LEXIS 25454, No. CV- 97-2271 (S.D. Cal. Nov. 5, 2001) (Order). On appeal to this court, Elekta argues that the district court usurped the jury's function, and the panel majority apparently agrees, for they now send the matter back for trial, stating that "the district court erred in finding that Elekta failed to demonstrate the existence of an issue of material fact on obviousness."

I agree that the issue of validity is not ripe for appellate review. But on remand there remains no continuing controversy between the parties. Perhaps this is, as contemplated in *Cardinal Chemical*, a case in which a validity determination warrants simple vacatur. Surely it is inappropriate for the appellate court to propose that the parties may continue to litigate in the district court, after noninfringement has been found on appeal.

APPENDIX C

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA

Case No. CV-97-2271-RHW

[Filed Sept. 6, 2002]

MEDICAL INSTRUMENTATION AND DIAGNOSTICS CORPORATION, Plaintiff,	)
v.	)
ELEKTA AB, et al., Defendants.	)

ORDER RE: POST-TRIAL MOTIONS

On May 31, 2002, the Court heard oral argument on the following motions: Motion for Enhanced Damages (Ct. Rec. 491), Motion for Attorney Fees (Ct. Rec. 493), Motion for Prejudgment Interest (Ct. Rec. 497), Motion for Permanent Injunction (Ct. Rec. 500), Cross Motion for Attorney Fees (Ct. Rec. 505), Motion for Judgment with respect to Damages (Ct. Rec. 507-1 and 507-2), Motion Re: Liability (Ct. Rec. 507-3 and 507-4), and Motion to Strike (Ct. Rec. 526). Paul Adams and Andrea Mays appeared on behalf of Plaintiff Medical Instrumentation and Diagnostics Corporation

(Midco). Patrick Sullivan and Theresa Gillis appeared on behalf of Defendants Elekta. In this Order, the Court also resolves the following outstanding motions: Motion in Limine (Ct. Rec. 402), Motion in Limine (Ct. Rec. 405), Motion to Preclude Unpled Tort Claim (Ct. Rec. 478), and Plaintiffs Motion for JMOL at Close of Evidence (Ct. Rec. 481). The Court has also considered the parties' additional briefing on the issue of attorney fees (Ct. Rec. 531,532, 534).

At the outset, the Court notes that this trial was unusual in a number of ways. In this patent infringement action, Elekta relied almost exclusively on cross-examination and JMOL defenses. Midco experts testified exhaustively about the claims of the patents and the operation of the accused products, giving persuasive argument that the accused products infringed the patents. Midco's damages expert testified in great depth about how to calculate damages. Elekta did not present any expert testimony on infringement or the operation of the accused products, nor did Elekta put on a damages expert. The jury was left to believe or disbelieve the testimony of plaintiff's experts.

Infringement

At trial, the jury found that Elekta's GammaPlan, SurgiPlan, and ScopePlan infringe claim 9 of the '846 patent, and claims 1, 3, 14, and 15 of the '684 patent. In this JMOL motion, Elekta argues that Midco did not present sufficient evidence at trial to support the jury verdict. Elekta's argument only addresses claim 9 of the '846 patent, assuming that the claims of the '684 patent do not require separate analysis for purposes of this motion.

First, a review of the claims at issue. Claim 9 of the '846 patent lists seven elements of the machine, and it is these

seven elements that must be present in the accused products to support a jury finding of infringement.

(1) Acquiring

The first task is to bring all of the pictures to the same physical location. Instead of each camera holding the picture, all pictures are sent to one computer.

(2) Converting

Once all of the pictures arrive at the same computer, the next task is to convert them to a common format. Computers can save files in many different formats, and programs exist that can change the data from one format to another.

(3) Storage

Once all the images are collected and converted, the computer stores them. Centralized storage not only makes recall more efficient, it frees up the MRI, CT, X-ray, or other machines to be used on other patients.

(4) Displaying

The doctor can look at the images individually, look at a collection of the images side-by-side, or look at a composite image created by overlaying two or more individual images.

(5) Manipulating

Overlaying two or more individual images is not particularly helpful unless the images have the same size and orientation. In this step, the user can hold one image fixed

while changing the size and orientation of another. The goal is to line up the images to make one composite image.

(6) Comparing

Using computer software, the doctor can change the characteristics of images using standard imaging techniques such as filtering, smoothing, sharpening, pseudocoloring, or edge detection.

(7) Calculating (Stereotactic Coordinates)

The patent claims a "means for determining stereotactic coordinates." The Court's construction elaborates, construing the claim to cover "computer software used to determine fiducials [reference points] on scanned images displayed on the computer monitor to correlate points on the displayed image with stereotactic coordinates." (Ct. Rec. 326, p. 5.)

Element-by-Element Comparison

Elekta's memorandum in support of this motion makes blanket accusations that the jury did not have sufficient evidence of *any* of the above listed elements. At the hearing, Elekta stressed that under *Alpex Computer Corp. v. Nintendo Co.*, 102 F.3d 1214 (Fed. Cir. 1996), Midco's burden for each element was to (1) define the function, way, and result claimed in the patent[1] (2) define the function, way, and result of the accused products, and (3) include specific testimony linking the contents of (1) and (2).

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[1] Elekta actually argued that Midco must define the function, way, and result for each element of the *claimed product*. This language is incorrect, as Midco patented a means, not merely a product.

At trial, the testimony of Midco's expert was far from conclusory (the primary problem with the testimony in *Alpex)*. Instead, Midco's expert engaged in an exhaustive process, discussing each element individually and producing evidence as to why the accused devices infringe that element. Because each element is necessary for an infringement finding, one task for Midco in the response memorandum was to identify points in the record where each element was discussed. This Midco did. These identifications, along with the Court's recollection of the testimony at trial, satisfies the Court that Midco has met its burden of an element-by-element comparison proof of infringement.

Sequence

Elekta argues that the seven elements described above must be performed in a rigid sequence, and that the jury finding of infringement is unsupported because Midco did not provide evidence that the accused products followed the sequence. The patent claim contains no specific requirement of following a rigid sequence. Neither party addressed sequence issues in Markman briefing, and neither party requested a jury instruction on a required sequence. Instead Elekta argues that the rigid sequence is plainly required by the language of the patent. The Court agrees that the claim details an ordered process of "acquiring-converting-storing-displaying-manipulating-comparing-calculating." However, there is no reason in the jury instructions or the patents themselves that each step occur only once. For example, an accused product could not avoid infringement merely because it stored an image that had been manipulated: as long as images that have been acquired and converted are stored, the third element is satisfied.

When the accused products acquire images, those images are stored in the original scanner formats. Therefore, the images are not converted to a common format before being stored on the hard disk. The Parties agree that the images are later converted to a common format (such conversion is a necessary prerequisite to fusion), but disagree as to whether any "storing" as defined in the patent occurs after the conversion. Midco cites trial testimony that the accused products store images not only on the hard drive, but also in RAM, in the video display memory, and in other places at different times during image processing. Response 10-11. Here, the jury could reasonably find that the accused products infringe if they followed an ordered process beginning "acquiring-storing-converting-storing-displaying." That is, the fact that the images are stored before they are converted does not demand a finding of noninfringement, as long as the images are also stored after they are converted (a finding supported by the evidence before the jury).

Elekta argues that because Midco put on evidence that "fusion" in the accused products fulfills the conversion element, the accused products could not possibly fulfill the later steps of displaying or manipulating two independent images (because fused images are no longer independent). After listening to expert testimony from both sides, one sees that Elekta uses "fusion" to describe a multiple-step operation, an operation described one step at a time by the Midco patents. The jury could reasonably conclude that Elekta's "fusion" function fulfills multiple elements of the Midco patents.

Identifying Specific Software

The Court construed elements 2, 4, 5, and 8 of the patent as covering various computer software known to one skilled

in the art.[2] Elekta argues that in order to find infringement, Midco had the burden of specifically identifying software within the skill of the art (presumably by naming specific programs or introducing specific programs into evidence) and then comparing that software to the software in the accused products.

The Court disagrees. First, specific programs may not exist. Note that Midco's burden to identify software "known to one skilled in the art" is a lesser burden than identifying software "existing in the art." Second, after Midco's expert testified that the software was known to one skilled in the art, Elekta had the opportunity to cross-examine and could have asked for more details, such as a request for specific programs. Third, Elekta put on no expert testimony that the accused products did not infringe the patents *(e.g.,* no Elekta expert testified that the software in the accused products was beyond the skill of the art). Thus, the jury had ample uncontroverted evidence that the software in the accused products fulfills the elements of the patents as construed by the Court.

One Image, Not Two (and the related Umemura defense)

During patent prosecution, Midco distinguished its patents from the prior art Umemura reference. After extensive briefing and oral argument on file wrapper estoppel and

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[2] The language differs slightly for each element, but the differences can be ignored for purposes of this motion. For example, element 2 refers to "software routines.., known to those of skill in the art;" element 4 refers to "routines known in the prior art;" element 5 refers to software "either commercially available or within the skill of practitioner in the field;" element 8 refers to software "apparent to one skilled in the art."

limitations on the doctrine of equivalents, the parties agreed on the following instructions:

> You may not find that elements 4 and 5 of claim 9 of the '846 patent or element 5 of claim 1 of the '684 patent cover products which involve complementary, dependent images, which by weighting and addition, form a single composite image on a single monitor.

Instruction 20 (1) (N).

> ... with respect to elements 4 and 5 of claim 9 of the '846 patent and element 5 of claim 1 of the '684 patent, you may only find infringement if the element is literally present in the accused products.

Instruction 26.

Elekta argues that the "overlay" of two or more images described in element 4 only covers two processes: (1) flicker frame display, where two separate images rapidly alternate on the display, and (2) overlay display, the computer equivalent to cellophane overlays (which Elekta maintains never involves combination of the image data). Although the patent expressly covers these two processes, it does not indicate that these are the only processes covered. Midco's expert testified that the computer equivalent to cellophane overlays could be accomplished in a variety of ways, most, if not all of which, involve combining image data. The jury appears to have reasonably followed the suggestion of Midco's expert.

Elekta's argument is that, in both of these descriptions, the viewer is looking at two images, and seeks to distinguish the accused products by noting that the "fusion" process results in one image, not two. The Court disagrees with

Elekta's limited interpretation of "overlay" and, at very least, notes that given Midco's expert testimony, it was well within the discretion of the jury to find that "overlay" includes processes in which data from two independent images are combined to create a single composite image.

Note that this definition of "overlay" is not foreclosed by Instruction 20 (1) (N), which deals with "complementary, dependent" images. Moreover, the Court finds that Instruction 20(1) (N) was particularly important, as Elekta never argued that the accused products involve "complementary, dependent" images. At trial, there was much ado about the admission of the Umemura reference (the basis for Instruction 20 (1) (N)). Given Instruction 20 (1) (N) (the language comes directly from the file history of the Umemura reference), Elekta could avoid infringement by showing that its product involves "complementary, dependent images, which by weighting and addition, form a single composite image on a single monitor." However, Elekta never pursued this "we are Umemura" defense at trial. At trial, Elekta sought to introduce the Umemura reference, but the Court sustained Midco's objection on relevancy grounds because no one had yet testified that the accused products involved the process described in Umemura (specifically, no one testified that the accused products involved "complementary, dependent images"). Instead of introducing testimony describing the accused products and their similarity to Umemura (which would have assured introduction of the Umemura reference into evidence as a separate document[3]), Elekta did not further pursue the "we are Umemura" defense.

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[3] At oral argument on these motions, counsel for Midco cited Trial Transcript 4021, noting that the Umemura reference was in evidence as an attachment to another exhibit.

This trial strategy precludes Elekta's current argument that *as a matter of law* Instruction 20(1) (N) mandates a finding of noninfringement.

Specificity of Hardware (the Ethernet board and framegrabber)

The Court's construction of element 1 contains seven lines of technical information regarding ethernet boards and ethernet communications networks. The Court's construction of element 4 contains eight lines of technical information regarding a framegrabber. Elekta argues that Midco's proof at trial failed to meet the high degree of specificity incorporated in these constructions.

With respect to the Ethernet board, Midco's expert did not use the specific phrase "through the system's Ethernet board" when discussing the accused products, but his testimony contains sufficient evidence of use of an ethernet board. *See* Response at 7. The Court finds that it was reasonable for the jury to infer that these references refer to the same Ethernet board described in the construction of element 1.

Similarly, with respect to the framegrabber, the Court finds that Midco's expert testimony was sufficient to establish the existence of element 4 in the accused products.

Element 6

Element 6 claims a "means for comparing said manipulated independent image to at least one other of said selected independent images." As construed by the Court, the element covers "software used to contrast characteristics of at least two selected images using the imaging techniques of filtering, smoothing, sharpening, pseudocoloring, or edge

detection." In response to Elekta's allegation that Midco presented no evidence that the accused products perform the function described in element 6, Midco has identified trial testimony excerpts stating that the accused products use the techniques of pseudocoloring, filtering, and edge detection. Response 21-22. The Court finds these excerpts more than adequate to support the jury verdict.

Damages

Actual Revenues or Projected Revenues?

In discovery, Midco requested financial statements summarizing revenue from each of the accused products, beginning in December 1991. Elekta provided the statements before the close of discovery. However, due to the death of Judge Schwartz and other unforeseen delays, Midco did not receive the actual revenue figures for 2000 and 2001. In December 2001, Midco requested Rule 26(e) updates of the revenue figures, but Elekta did not provide these updates.[4]

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[4] At oral argument, the parties referred to a decision of the Magistrate in this case, ruling that Elekta had no obligation to disclose the supplementary financial figures. The Court presumes that parties refer to Midco's Fourth Motion in Limine (Ct. Rec. 412), which the Court referred to the Magistrate. The Court does not address the breadth of the Magistrate's summary ruling, nor will the Court even assume that Midco's Fourth Motion in Limine specifically addressed this issue. For purposes of the motion before the Court, the critical issue is not what Elekta was or was not obligated to disclose but, rather, the consequences of Elekta's decision not to disclose updated financial figures. In other words, even if Elekta had no obligation to disclose the updated financial figures, Elekta may suffer from its choice to withhold the updated financial figures.

Elekta takes the position that in patent trials, the jury verdict only covers damages through the close of discovery (requiring the Court to undertake a post-trial accounting to determine damages from the close of discovery to the date of the verdict). The Court is unaware of any case law forbidding the jury from determining damages through the date of trial, nor does the Court believe that Fed. R. Civ. P. 62 mandates a post-trial accounting as the only way to determine damages for this period. Here, the jury had sufficient evidence to determine damages through the date of trial, and reasonably relied upon the best available evidence.

Having no actual sales figures, Midco's expert, Carl Degen, was charged with the task of testifying with respect to damages. Extrapolating from known sales figures, Degen projected revenues for 2000, 2001, and the relevant portion of 2002. Elekta objected to the introduction of Degen's "manufactured" figures, and the Court overruled the objection because Degen's productions were the best available evidence, especially given the reason for the inadequacy of proof and resolving any doubt against the infringer.

Later at trial, an Elekta witness testified about actual Elekta revenues from the Gamma Knife: "if you're looking at 2000, 2001, and 2002, you will see right now [revenue] is actually declining. We hope we can turn that around because we're going from 25 to 26 million to 23 and now for the two first-quarter 11. . . ." It is unclear what document the witness was referring to. Without pointing to any document introduced at trial, Elekta argues that this oral testimony was definitive that Elekta's actual revenues were 25 million in 2000, 23 million in 2001, and 11 million in 2002.[5]

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[5] Elekta later attacked the accuracy of even these figures, seeking to introduce the Declaration of Rod Farmer as the

The jury awarded $15 million in damages for the Gamma Knife, apparently taking 9 percent of the projected revenues of $166,258,322, the procedure advocated by Midco. Had the jury used 9 percent of the alleged actual revenues (a figure not available to the jury at trial), they would have found Gamma Knife damages closer to $9,000,000.

Elekta primarily relies on three[6] cases for the proposition that actual sales evidence is to be preferred over projections. In *Oiness v. Walgreen Co.*, 88 F.3d 1025, 1029-30 (Fed. Cir. 1996), both plaintiff and defendant put in estimates of actual sales, and the court found that plaintiff's estimates were absolutely speculative. *In Hughes Tool Co. v. Dresser Indus., Inc.*, 816 F.2d 1549, 1558 (Fed. Cir. 1987), the Federal Circuit rejected the district court's royalty determination based on projected profits, noting that the actual numbers were available in discovery. *Shockley v. Arcan, Inc.*, 248 F.3d 1349, 1363 (Fed. Cir. 2001) is inapplicable, as there the court rejected a projected determination of future (post judgment) lost profits. The case before the Court is distinguishable because (1) actual sales figures (specifically, the requested Rule 26 (e) updates) were not disclosed and could have been; (2) given the difficult task, Plaintiff's expert relied on sound economic theory (projecting growth based on previous growth); (3) Elekta's only testimony regarding actual revenues does not cite to any document disclosed in

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determinative actual revenue figures. Elekta has cited no rule as to why these untimely actual revenues figures should be admissible in this posttrial setting, and the Court finds no authority for the admission of new evidence at this late stage.

[6] The Court will not consider Elekta's citation to *Nilssen v. Motorola, Inc.*, 1998 WL 513090 (N.D. Ill. Aug. 14, 1998), an unpublished opinion from a District Court in North Dakota.

discovery, and appears to be estimates (all figures are rounded to the nearest million dollars); and (4) after introducing this vague testimony regarding actual damages, Elekta did not move to strike the earlier admitted Midco projections. Given this situation, the Court finds that the jury could reasonably decide to rely on the Midco projections as the best available evidence of sales of the infringing products. Given Elekta's litigation tactics, Midco's expert testimony appears the only reasonable way to estimate damages.

Rule of Thumb

At trial, Midco's expert, Carl Degen, testified at length on the "rule of thumb" approach, where a reasonable royalty is calculated by taking one-third to one-quarter of the anticipated profits on a patented product as a royalty. For the products at issue, Mr. Degen analyzed historical profits on similar products, concluding that a 9 percent royalty would be appropriate. Elekta did not put on a damages expert, did not offer any expert testimony that some approach other than the "rule of thumb" should be used, and did not offer any expert testimony that the "rule of thumb" should be applied differently (reaching some amount other than 9 percent). Instead, Elekta argues that *as a matter of law,* the "rule of thumb" was incorrectly applied. Mr. Degen was not testifying on his views of patent law but, rather, was testifying, based on his expert *experience* in hundreds of patent cases, that a 9 percent royalty would be appropriate in this matter. Given that this was the only available evidence regarding methodology for calculation of damages, the jury was well within its discretion to rely on this reasonable expert testimony.

Entire Market Value Instruction

At trial, the Court gave the following instruction[7] (reproduced in relevant part):

Entire Market Value Rule

> Normally, in applying these factors, you should only consider the portion of the revenue that is due to the patented invention (as compared to the portion of the revenue due to other factors, such as unpatented elements tor unpatented manufacturing processes, or features or improvements developed by Elekta). However, if you find (1) that the patented product is "functionally integrated" with the non-patented product, and (2) that the patented product "drives the market" for the sale of the non-patented product, you may. choose to apply the entire market value rule. If you choose to apply the entire market value rule, you should consider the entire revenue, and not just the portion of the revenue that is due to the patented invention.
>
> The patented product is "functionally integrated" with the patented product if the components together are analogous to components of a single assembly or are parts of a complete machine, or they constitute a functional unit.

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[7] The Federal Circuit Model Instructions do not include an entire market value rule instruction.

> The patented product "drives the market" for sales of the patented product if the patent-related feature is the basis for customer demand.

The amount of patent damages is a question of fact for the jury, and was properly submitted for their consideration. *Bic Leisure Prods., Inc. v. Windsurfing Int'l, Inc.*, 1 F.3d 1214, 1217-18 (Fed. Cir. 1993). The method for calculation of damages, including whether the entire market value rule is to be applied, is a question of fact. *See Tec Air, Inc. v. Denso Mfg. Mich., Inc.*, 192 F. 3rd 1353, 1362 (Fed. Cir. 1999) (finding that application of entire market value rule is a question of fact). The Court finds that there was a sufficient factual basis to submit the entire market value rule instruction to the jury. Specifically, the jury considered Elekta's advertising touting the benefits of the patented technologies in the Gamma Plan, along with the fact that the Gamma Knife and the Gamma Plan are usually sold together and used together as one functioning unit.

Elekta also argues that the instruction should have included a requirement that the Entire Market Value Rule cannot be applied unless Midco can show that it sells the unpatented products. While this requirement is certainly necessary to apply the Entire Market Value Rule to a lost profits award (as evidenced by numerous cases cited by Elekta), this requirement is not necessary to apply the Entire Market Value Rule to a reasonable royalty award. In fact, the rationale behind reasonable royalty damages is to afford the patent holder some compensation when lost profits cannot be claimed or proved (*e.g.*, when the patent holder does not sell the patented product). *See Fromson v. Western Litho Plate & Supply Co.*, 853 F.2d 1568, 1574 (Fed. Cir. 1988).

Prejudicial evidence

Elekta argues that Midco prejudiced the jury by (1) making accusations that Elekta committed various discovery violations, (2) noting that Midco had problems with Elekta subsidiary PTI, and (3) introducing testimony on the breach of contract claims that were later withdrawn. In the briefing, Elekta cites to only one portion of the trial transcript (the segment regarding PTI) where Elekta objected. The Court overruled the objection to "see what the question is," and promptly sustained the relevance objection after the question was asked. Transcript 1/29/02, p. 1093. The Court finds that Elekta has failed to identify any prejudicial evidence that reached the jury.

Injunction

There are two issues before the Court with respect to issuance of a permanent injunction: (1) should an injunction be entered? (2) what are the proper terms of the injunction?

Should an Injunction be Entered?

Following a finding of infringement, a court "may grant injunctions in accordance with the principles of equity to prevent a violation of any rights secured by the patent, upon such terms as the court deems reasonable." 35 U.S.C. § 283. Generally, after infringement has been determined, a court will issue a permanent injunction prohibiting infringement unless a sound reason for its denial is shown. *See Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d, 1259, 1272 (Fed. Cir. 1999). The injunction is not automatic and should only be issued if, and to the extent, equity so requires. *Id.* The grant or denial of the injunction is reviewed under the abuse of discretion standard. *Id.* In determining whether to grant a

permanent injunction, the Court considers (1) whether Midco will be irreparably injured if the injunction is not issued, (2) whether Midco has an adequate remedy at law for monetary damages, (3) who would be more harmed by the issuance or denial of the injunction, and (4) whether granting the injunction would serve any public interest. *See Smith Int'l, Inc. v. Hughes Tool Co.,* 718 F.2d 1573 (Fed. Cir. 1983).

What are the Proper Terms of the Injunction?

The parties disagree about the specific language identifying the products covered by the injunction. Fed. R. Civ. P. 65 (d) details the proper scope of an injunction: "Every order granting an injunction.., shall be specific in terms; shall describe in reasonable detail, and not by reference to the complaint or other document, the act or acts sought to be restrained." In *KSM Fastening Sys., Inc. v. H.A. Jones Co.,* 776 F.2d 1522 (Fed. Cir. 1985) the Federal Circuit reversed the District Court's contempt finding, noting that the injunction at issue was unreasonable because it enjoined not only specific products, but also their equivalents (a term of art in patent law).

> The unreasonableness of a decree incorporating a vague or broad prohibition against "infringement" of a "patent" is alleviated because of the universal rule. . .that contempt proceedings, civil or criminal, are available only with respect to devices previously admitted or adjudged to infringe, and two other devices which are no more than colorably different there from and which clearly are infringements of the patent. . . . An enjoined party is entitled to design around the claims of a patent without the threat of

> contempt proceedings with respect to every modified device. . .

Id., at 1526.

As the court specifically notes in *KSM,* "Even if the new product may infringe the patent, as long as it is more than colorably different the infringement should not amount to a contempt nor should it be tested in contempt proceedings." *Id.,* at 1528. The Court adopts the "colorably different" language (recommended by Elekta) for the injunction. Thus, the injunction is limited to the products found to infringe and products not colorably different from those products.

The parties also disagree about what effect, if any, the injunction should have on Elekta products currently being used by hospitals (specifically, the 50 GammaPlan systems sold since April 1996 and the 16 GammaPlan Version 4.0 upgrades). Rule 65(d) provides that any injunction "is binding only upon the parties to the action, their officers, agents, servants, employees, and attorneys, and upon those persons in active concert or participation with them." The hospitals are customers, good-faith purchasers, who bought a product that turned out to infringe a patent. The hospitals are not parties to the action or entities "in active concert" with Elekta and, thus, the Court has no jurisdiction to enjoin their activities. Even if the Court did have jurisdiction to enjoin the activities of hospitals, the Court would find that enjoining the acts of hospitals in this matter is not in the public interest.

Prejudgment Interest

In *General Motors Corp. v. Devex Corp.,* 461 U.S. 648 (1983), the Supreme Court held that prejudgment interest should ordinarily be awarded where necessary to afford a

patentee full compensation for infringement. The Court noted that prejudgment interest is ordinarily necessary to ensure that the patent holder is placed in as good a position as he would have been had the infringer entered into a reasonable royalty agreement.

To calculate the proper amount of prejudgment interest, the Court must determine the following: (1) the principal amount for which interest is awarded, (2) the interest rate, (3) the method used to accrue interest (compound or simple), and (4) the date upon which interest begins accruing.

Principal

The principal amount for which interest is awarded is the amount of compensatory damages (here, the damages based on reasonable royalty, and not enhanced damages or attorneys' fees).

Interest rate

The Court may choose the prime rate (the rate banks charge for short-term unsecured loans to creditworthy customers), the Treasury bill rate (the virtually risk-free rate one gets when loaning money to the government), the state statutory rate (Article 15, § 1 of the California Constitution provides for 7 percent), or any alternative rate supported by the evidence.

In 28 USC § 1961, Congress has mandated that courts calculate postjudgment interest at the Treasury bill rate, compounded annually. The Ninth Circuit has applied this rule to prejudgment interest in some cases:

> We conclude that the measure of interest rates prescribed for post-judgment interest in 28 U.S.C. § 1961 (a) is also appropriate tor fixing the rate for pre-judgment interest in cases such as this, where pre-judgment interest may be awarded, unless the trial judge finds, on substantial evidence, that the equities of the particular case require a different rate.

Western Pacific Fisheries, Inc. v. SS President Grant, 730 F.2d 1280, 1289 (9th Cir. 1984). Although *Western Pacific* was a maritime case, its analysis has been applied to numerous other actions, including 1983 due process claims, SEC actions, 1983 labor claims, and a Warsaw Convention case. Although the Court has found no rule requiring the *Western Pacific* analysis when dealing with patent cases, the Court, here, finds that the Treasury bill rate is most appropriate in this matter.

The Court chooses not to apply the state statutory rate. While the state statutory rate is, of course, not controlling in the context of a suit based on a federal claim, federal courts have used the statutory rate in the state in which they sit to calculate an award of prejudgment interest. *See Brooktree Corp. v. Advanced Micro Devices, Inc.,* 757 F. Supp. 1101, 1103 (S.D. Cal 1990). However, the statutory rate is problematic because it does not account for market fluctuations, which probably would have been accounted for in a hypothetical agreement.

Simple, Compounded Annually, or Compounded Quarterly?

Courts have broad discretion in deciding whether to award simple or compound interest. Again, the goal is to put the patent holder into the position in which he would have been

had the infringement not occurred (*i.e.*, had the parties entered into a reasonable royalty agreement). For postjudgment interest, 28 U.S.C. § 1961 requires annual compounding. Midco requests quarterly compounding, noting that in the vast majority of patent licenses, royalties are paid quarterly. Elekta correctly notes that all of the figures presented at trial were yearly figures. Although many patent cases can be cited for both simple or compound interest, here, annual compounding best approximates what the parties would have done had they entered into a reasonable royalty agreement.

Summary

The Court awards prejudgment interest at the Treasury bill rate, compounded annually, as if Midco had received a 9 percent royalty on all the relevant sales of infringing products. For simplicity, the Court will assume that each year Elekta would have paid a 9 percent royalty for the entire year's sales on July 1. For GammaKnife sales for 2000, 2001, and 2002, assume that revenues are as listed in Exhibit 813.[8]

Enhanced Damages

35 U.S.C. § 284 provides that a Court "may increase the damages up to three times the amount found or assessed." Enhanced damages are punitive, not compensatory. *Beatrice Foods Co. v. New England Printing & Lithographing Co.*, 923 F.2d 1576, 1579 (Fed. Cir. 1991). The Court's decision to increase damages requires two steps: (1) finding clear and

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[8] As discussed above, the jury verdict for GammaKnife sales for these years is based on projected (not actual) revenues. Therefore, the Court will calculate the interest based on the projected sales, which were the best available evidence of revenues.

convincing evidence that the infringement was willful (or that other circumstances justify an enhanced award), and (2) determining from the totality of the circumstances that damages should be increased. *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 948 F.2d 1573,1576 (Fed. Cir. 1991). In making the second determination, the Court should assess the following factors:

(1) whether the infringer deliberately copied the ideas or design of another;

(2) whether the infringer, after being put on notice of the patent, took reasonable steps to investigate the scope of the patent and formed a good-faith belief that it was invalid or not infringed,

(3) the infringer's behavior during the litigation;

(4) the infringer's size and financial condition;

(5) the closeness of the case;

(6) the duration of the infringer's misconduct;

(7) the remedial action by the infringer,

(8) the infringer's motivation for the harm; and

(9) the infringer's attempts to conceal its infringement.

Read Corp. v. Portec, Inc., 970 F.2d 816, 827-28 (Fed. Cir. 1992).

With respect to the first determination, the jury found that there was clear and convincing evidence that the infringement

was willful. The Court finds that the record contains sufficient evidence to support the jury determination, and will not second-guess this decision in determining whether to increase damages. Specifically, the jury may have relied on the following: Elekta's video touting the benefits of the new Version 4.0 (one benefit is virtually identical to Midco's patented idea), Elekta's cavalier attitude toward the Midco patents (Elekta did not consult an attorney initially, and appeared absolutely unconcerned about the patent claims), and Elekta's previous business relationship with Midco (the two companies had discussed a joint venture, but Elekta decided to proceed alone -- with technology that the jury found belonged to Midco).

With respect to the second determination, the Court considers each of the *Read* factors.

(1) Whether the Infringer Deliberately Copied the Ideas or Design of Another

Again, Elekta's previous business relationship with Midco suggests that Elekta deliberately copied the ideas of another. Elekta's product was not just suspiciously similar but, rather, almost exactly the same as the Midco invention--a fact highlighted by the fact that Elekta did not put on any expert to testify about the differences between Elekta's products and the claims of the patent. The Court finds that this factor weighs in favor of enhanced damages.

(2) Whether the Infringer, After Being Put on Notice of the Patent, Took Reasonable Steps to Investigate the Scope of the Patent and Formed a Good-faith Belief That it was Invalid or not Infringed

At trial, Dr. Dan Leksell testified that he did not seek advice of counsel regarding the Midco patents because he was "so certain" of his noninfringement analysis that he did not need to take the matter to a patent attorney. Dr. Leksell is not trained as a patent attorney and did not compare the claims of the patent with the accused structures. Dr. Leksell's "analysis" was so insignificant as to leave no paper trail: Elekta presented no notes, memoranda, or other evidence whatsoever that Elekta took *any* steps to determine whether its products infringed the Midco patents. The total lack of any paper trail of the alleged noninfringement analysis further demonstrates that this was a serious breach of Elekta's duty of due care. The Court finds that this factor weighs in favor of enhanced damages.

(3) The Infringer's Behavior During the Litigation

In the Declaration of Paul Adams in Support of Motion for Attorneys Fees, Midco presents 17 specific areas in which it feels it was the victim of litigation misconduct and/or bad faith litigation. As this case has lasted over 5 years and been before at least three judges, this Court did not have the opportunity to witness all of the accusations listed. While the conduct of Elekta's counsel in this case was hard-nosed, the Court does not find that it rises to the level of litigation misconduct.

The most serious allegation is that of racial prejudice. Specifically, the Court sustained Midco's *Batson* challenge during jury selection. Dr. Hardy, the inventor of Midco's

machines and founder of Midco, is a black man and was present during jury selection and every day of the trial. In sustaining Midco's *Batson* challenge, the Court necessarily found that, by a preponderance of the evidence, Elekta's proffered explanation for the strike was a pretext for race (and that Elekta had engaged in purposeful discrimination on the basis of race). Given the weight of the accusation of racial discrimination, the Court does not make such decisions lightly. However, given the importance of the fight against racial discrimination, the Court does not reserve such decisions for obvious or blatant violations. Trial courts must make these critical decisions on the spot. Likewise, Elekta had to satisfy its burden of production (providing a neutral explanation for the challenge) on the spot. In this context, the Court finds that this factor is neutral on the issue of enhanced damages.

(4) The Infringer's Size and Financial Condition

Midco argues that this factor weighs in favor of a large punitive award, because the Elekta network has annual revenues of over $200 million and a combined market capitalization of over $100 million. Elekta does not dispute these numbers, but responds that they suffered substantial losses or meager profits for the 1996-2002 time period. However, this information is unhelpful because Elekta has not indicated the source of low profits (high equipment costs or production expenses may be more relevant than R&D or investment decisions that have not panned out). Elekta also responds that shareholder equity (assets minus outstanding liabilities) is less than $86 million. Elekta has not suggested any inability to pay the judgment, or noted any specific detrimental effects that would result from paying the judgment. Here, the Court finds that the annual revenues and market capitalization weigh in favor of enhanced damages.

(5) The Closeness of the Case

Elekta produced no expert to argue that its machines did not infringe the Midco patents but, instead, relied exclusively on its lawyers' ability to pick apart testimony of Midco experts. The Court is left with sufficient evidence of infringement, and no evidence of noninfringement. Likewise, Elekta produced no expert on the appropriate amount of damages, again relying on its lawyers' ability to pick apart testimony of Midco experts. The Court is left with sufficient evidence of damages under one theory, and little evidence of damages under another theory. Elekta's entire case centered around arguing that Midco failed to provide sufficient evidence to support their claims. Once Midco's claims survived JMOL and were submitted to the jury, the case was not close. The Court finds that this factor weighs in favor of enhanced damages.

(6) The Duration of the Infringer's Misconduct

Elekta began infringing the Midco patents by at least April 1996, when Elekta introduced Version 4.0 of the GammaPlan system. Elekta argues that the delay in determining infringement was due to delays in litigation caused by Midco. The Court finds that many delays in this litigation were also due to Elekta or the Court (specifically, the death of Judge Schwartz). Regardless of the source of the delay, the fact remains that Elekta continued to sell the infringing products during a 6-year time period while litigation was pending. The Court finds that this factor weighs in favor of enhanced damages.

(7) The Remedial Action by the Infringer

Elekta did not take any remedial action until the jury returned a verdict. After the verdict, Elekta immediately ceased shipping and selling all products containing fusion. However, because Elekta did not voluntarily stop making the infringing product during the pendency of the lawsuit, this factor weighs in favor of enhanced damages.

(8) The Infringer's Motivation for the Harm

There is no sufficient evidence in this matter regarding the motivation for the harm. Elekta's motivation in infringement seemed purely financial. The Court finds that this factor does not significantly weigh in favor of enhanced damages.

(9) The Infringer's Attempts to Conceal its Infringement

Midco argues that Elekta's litigation tactics indicate an intent to conceal its infringement. The Court finds no evidence of affirmative attempts to conceal infringement, and that this factor does not significantly weigh in favor of enhanced damages.

Having found that the evidence supports a finding by clear and convincing evidence that the infringement was willful, and having considered each of the *Read* factors, the Court finds that damages in this matter should be enhanced.

The jury's damage award, while well-supported by the evidence, was at the high end of the jury's options in choosing a reasonable award. Given the existing compensatory award from the jury, as well as the Court's granting of Midco's attorney fees in this case, the Court finds

that the punitive purposes of the enhanced damages statute will be adequately served by a 25 percent enhancement.

Attorney fees

35 U.S.C. § 285 provides that "[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party." The award of attorney fees under this section is compensatory, rather than punitive. *Plastic Container Corp. v. Continental Plastics of Oklahoma, Inc.*, 607 F.2d 885 (10th Cir. 1979). The Court follows two steps in determining whether to award attorney fees: (1) determining whether the case is "exceptional," and (2) deciding to exercise discretion in awarding attorney fees. Conduct sufficient to make a case "exceptional" may include willful infringement, inequitable conduct, litigation misconduct, and vexatious litigation tactics. *Hoffman-LaRoche Inc. v. Invamed, Inc.* 213 F.3d 1359, 1365 (Fed. Cir. 2000).

As discussed above, the jury's finding of willful infringement is well-supported by the evidence. Midco additionally cites numerous alleged instances of litigation misconduct by Elekta. The Court need not evaluate the truthfulness of each allegation, as the willful infringement here is sufficient to find the case "exceptional" for § 285 purposes.

The Federal Circuit recently noted that "[w]hile a finding of willful infringement does not mandate that damages be increased or that attorney's fees be awarded, after an express finding of willful infringement, a trial court should provide reasons for not increasing a damages award or for not finding a case exceptional for the purpose of awarding attorney's fees." *Tate Access Floors, Inc. v. Maxcess Tech., Inc.*, 222 F.3d 958 (Fed. Cir. 2000).

Here, Midco was only successful on a portion of its claims. In *Hensley v. Eckerhart,* 461 U.S. 424 (1983), the Supreme Court gives guidance as to how to determine the proper amount of attorney fees in cases when plaintiff has achieved only partial or limited success. Since an award of the entire claimed hours (here $3 million) would be excessive in this case, the Court must consider how much of a deduction is proper.

> There is no precise rule or formula for making these determinations. The District Court may attempt to identify specific hours that should be eliminated, or it may simply reduce the award to account for the limited success. The Court necessarily has discretion in making this equitable judgment ....
>
> A request for attorneys fees should not result in a second major litigation. Ideally, of course, litigants will settle the amount of a fee. Where settlement is not possible, the fee applicant bears the burden of establishing entitlement to an award and documenting the appropriate hours expended and hourly rates.

Id. at 436-37.

The Court finds that the claims are not so intertwined as to make individualized accounting impractical, and awards Midco attorney fees for all the claims on which Midco prevailed. The parties' original briefing on the issue of attorney fees, however, focused almost entirely on whether or not to award attorney fees, rather than the proper amount of attorneys' fees. Thus, the Court requested that the parties' submit additional fees information listing attorney fees for only those claims on which Midco succeeded. (Ct. Rec. 530.)

Having considered the supplemental information provided by the parties, the Court finds that Midco is entitled to an award of $1,564,133.01 for attorneys' fees. This award represents 59 percent of Midco's total attorney fee expenditures in the case. Midco submitted to the Court a detailed and meticulous accounting of the hours its attorneys spent on the prevailing claims, which substantiated this total. The Court finds Midco's request based on this information to be accurate and reasonable. The Court finds Midco's cost request to be reasonable as well.

Elekta objects to Midco's fee request because it did not have an opportunity to review Midco's attorney time records submitted to the Court for *in camera* review. It was never the Court's intention, however, to make detailed attorney time records describing the services performed by Midco's attorneys available for perusal by the Defendant. This information is privileged, and Midco's submission to the Court was sufficient to allow the Court to determine the accuracy of its accounting. *See In Re Grand Jury Witness,* 695 F.2d 359, 362 (9th Cir. 1982) (noting that time records that reveal nature of attorney services provided are privileged and should be submitted *in camera* for court's inspection).

Midco is not able to recover expert fees under 35 U.S.C. § 285. The Court does not find that Elekta's conduct was egregious enough to warrant an award of expert fees under the Court's inherent power. Midco may, however, submit to the Court within 14 days of the date of this order a request for witness fees under 28 U.S.C. § 1821. Any such request must be fully documented.

Elekta has filed a Cross-Motion for Attorney Fees and Costs (Ct. Rec. 505), alleging misconduct and vexatious litigation by Midco. Specifically, Elekta maintains that Midco

filed frivolous claims, maintained those frivolous claims, and falsely accused Elekta's counsel of manufacturing documents. Having presided over numerous hearings and the trial in this matter, the Court was never informed of and did not observe litigation conduct by Midco that was so offensive as to warrant an award of attorney fees to Elekta.

IT IS HEREBY ORDERED

1. Midco's Motion for Enhanced Damages (Ct. Rec. 491) is **GRANTED**. The Court exercises its discretion to enhance the damages by 25 percent.

2. Midco's Motion for Attorney Fees (Ct. Rec. 493) is **GRANTED**. Midco is awarded $1,564,133.01 for attorneys' fees and $139,029 for costs, totaling $1,703,162.01. The Court will allow Midco 14 days from the date of this order to submit a request for witness fees under 28 U.S.C. § 1812.

3. Midco's Motion for Prejudgment Interest (Ct. Rec. 497) is **GRANTED**.

4. Midco's Motion for Permanent Injunction (Ct. Rec. 500) is **GRANTED**. It is further ordered that Defendants, their officers, agents, servants, employees, attorneys, or any of them, and all persons acting in concert or participation with them, or with any of the foregoing, be and hereby are permanently enjoined from making, using, offering to sell or selling in the United States or importing into the United States the infringing products or products not colorably different from the infringing products.

5. Elekta's Cross-Motion for Attorney Fees (Ct. Rec. 505) is **DENIED**.

6. Elekta's Motion for Judgment with respect to Damages (Ct. Rec. 507-1 and 507-2) is **DENIED**.

7. Elekta's Motion Re: Liability (Ct. Rec. 507-3 and 507-4) is **DENIED**.

8. Midco's Motion to Strike (Ct. Rec. 526) is **GRANTED**. The Court strikes Paragraphs 2 and 3 of the Rod Farmer declaration, as well as the attachments thereto.

9. The remaining Motions in Limine (Ct. Rec. 402 and 405), on which the Court reserved ruling prior to trial and resolved at trial, are now **DENIED AS MOOT**.

10. Elekta's Motion to Preclude Unpled Tort Claim (Ct. Rec. 478) is **DENIED AS MOOT.**

11. Midco's Motion for JMOL at Close of Evidence (Ct. Rec. 481) is **DENIED.**

IT IS SO ORDERED. The District Court Executive is directed to enter this order, provide copies to counsel and **CLOSE** the file.

DATED this 4th day of September 2002.

/s/_____
ROBERT H. WHALEY
United States District Judge